KAL-4

KitchenAid

TECHNICAL EDUCATION

ensemble™
SUPERBA®
FABRIC CARE

FRONT-LOADING AUTOMATIC WASHER

MODEL KHWS01PMT / WH

JOB AID 4317352

FORWARD

This KitchenAid Job Aid "Ensemble™ Front-Loading Automatic Washer" (Part No. 4317352), provides the technician with information on the installation, operation, and service of the Ensemble Front-Loading Automatic Washer. It is to be used as a training Job Aid and Service Manual. For specific information on the model being serviced, refer to the "Use and Care Guide," or "Tech Sheet" provided with the washer.

The Wiring Diagram used in this Job Aid is typical and should be used for training purposes only. Always use the Wiring Diagram supplied with the product when servicing the unit.

GOALS AND OBJECTIVES

The goal of this Job Aid is to provide detailed information that will enable the service technician to properly diagnose malfunctions and repair the KitchenAid Ensemble Front-Loading Automatic Washer.

The objectives of this Job Aid are to:

- Understand and follow proper safety precautions.
- Successfully troubleshoot and diagnose malfunctions.
- Successfully perform necessary repairs.
- Successfully return the washer to its proper operational status.

WHIRLPOOL CORPORATION assumes no responsibility for any repairs made on our products by anyone other than Authorized Service Technicians.

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GENERAL

MODEL & SERIAL NUMBER DESIGNATIONS

MODEL NUMBER

MODEL NUMBER	K	H	W	S	01	P	MT	0
PRODUCT GROUP K = KITCHENAID								
PRODUCT IDENTIFICATION H = HORIZONTAL AXIS - DOMESTIC								
FEATURE CODE W = WASHER								
FEATURE CODE S = SUPERBA								
SERIES								
YEAR OF INTRODUCTION P = 2004								
COLOR CODE MT = METEORITE WH = WHITE								
ENGINEERING CHANGE (NUMERIC)								

MODEL NUMBER (PEDESTAL)

MODEL NUMBER	L	A	B	27	0	0	P	MT	0
PRODUCT GROUP L = Domestic Laundry									
PRODUCT IDENTIFICATION A = Laundry Accessory									
FEATURE CODE B = Pedestal Base									
PRODUCT WIDTH									
FILLER									
FILLER									
YEAR OF INTRODUCTION									
COLOR CODE MT = Meteorite, Q = White									
ENGINEERING CHANGE									

SERIAL NUMBER

SERIAL NUMBER	CS	P	42	09793
DIVISION RESPONSIBILITY CS = Schorndorf, Germany				
YEAR OF PRODUCTION P = 2003				
WEEK OF PRODUCTION 42 = 42ND WEEK				
PRODUCT SEQUENCE NUMBER				

SERIAL NUMBER (PEDESTAL)

SERIAL NUMBER	C	P	01	10001
MANUFACTURING SITE C = CLYDE, OH				
YEAR OF PRODUCTION P = 2003				
WEEK OF PRODUCTION				
PRODUCT SEQUENCE NUMBER				

MODEL & SERIAL NUMBER LABEL AND TECH SHEET LOCATIONS

The Model/Serial Number label and Tech Sheet locations are shown below.

Model & Serial Number Label Location

Tech Sheet Location (Behind Toe Panel)

SPECIFICATIONS

Model Number	KHWS01PMT / WH
Color	MT = Meteorite, WH = White
Electrical Requirements Heating Power Max. Current Rated Current Voltage Frequency	 1,000W 12A 15A 120V 60 Hz
Gallons/Normal Cycle	15.8 Gal./60 L
Capacity	19.8 lbs. (9 kg.)
Volume	3.7 cu. ft. (IEC equivalent)
Max. Spin Speed	1150 RPM
Dimensions Height Height (Feet Extended) Width Depth Weight	 37.4″ (950mm) 38.2″ (970mm) 27″ (686mm) 30.3″ (770mm) 245 lbs. (111kg.)
Installation Options	Pedestal Stackable
Programs Program Selector Temperature Selector Spin Speed	 Rotary 12 Programs Button (5 levels) Button (5 levels)

PEDESTAL WARRANTY

FULL ONE YEAR WARRANTY ON MECHANICAL PARTS

For one year from the date of purchase, when this **Pedestal** is installed with the listed washer or dryer and operated according to the instructions provided in the washer or dryer Owner's Manual or Use and Care Guide, supplier will repair or replace any of its mechanical parts if defective in material or workmanship.

WARRANTY RESTRICTION

If the **Pedestal** is subject to other than private family use and or used with any other product than those listed in the installation instructions, the warranty is null and void.

KITCHENAID WASHER WARRANTY

TWO-YEAR FULL WARRANTY

For two years from the date of purchase, when this washer is operated and maintained according to instructions attached to or furnished with the product, KitchenAid will pay for replacement parts and repair labor costs to correct defects in materials or workmanship. Service must be provided by a KitchenAid designated service company.

THIRD THROUGH FIFTH YEAR LIMITED WARRANTY ON MOTOR AND CENTER POST ASSEMBLY BEARINGS

For the third through fifth year from the date of purchase, when this washer is operated and maintained according to instructions attached to or furnished with the product, KitchenAid will pay for replacement parts for the motor and center post assembly bearings if defective in materials or workmanship.

THIRD THROUGH TENTH YEAR LIMITED WARRANTY ON TOP AND CABINET ASSEMBLY, GEARCASE ASSEMBLY, AND OUTER TUB

For the third through tenth year from the date of purchase, when this washer is operated and maintained according to instructions attached to or furnished with the product, KitchenAid will pay for replacement parts for the following components if defective in materials or workmanship: the top and cabinet assembly due to rust; any part of the gearcase assembly; the outer tub should it crack or fail to contain water.

LIFETIME LIMITED WARRANTY ON STAINLESS STEEL WASH DRUM

For the lifetime of the washer, when this washer is operated and maintained according to instructions attached to or furnished with the product, KitchenAid will pay for replacement parts for the stainless steel wash drum should it chip or rust due to defects in materials or workmanship.

KitchenAid will not pay for:

1. Service calls to correct the installation of your washer, to instruct you how to use your washer, or to replace house fuses or correct house wiring or plumbing.
2. Repairs when your washer is used in other than normal, single-family household use.
3. Damage resulting from accident, alteration, misuse, abuse, fire, flood, acts of God, improper installation, installation not in accordance with local electrical and plumbing codes, or use of products not approved by KitchenAid.
4. Any labor costs during the limited warranty periods.
5. Replacement parts or repair labor costs for units operated outside the United States and Canada.
6. Pickup and delivery. This product is designed to be repaired in the home.
7. Repairs to parts or systems resulting from unauthorized modifications made to the appliance.
8. In Canada, travel or transportation expenses for customers who reside in remote areas.

KITCHENAID AND KITCHENAID CANADA SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some states and provinces do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion or limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state or province to province.

Outside the 50 United States and Canada, this warranty does not apply. Contact your authorized KitchenAid dealer to determine if another warranty applies.

If you need service, first see “Troubleshooting” in the Use and Care Guide. Additional help can be found by checking “Assistance or Service” in the Use and Care Guide, or by calling our Customer Interaction Center at **1-800-422-1230**, from anywhere in the U.S.A. or write: KitchenAid Brand Home Appliances, Customer Interaction Center, 553 Benson Road, Benton Harbor, MI 49022-2692. In Canada, call KitchenAid Canada at **1-800-807-6777**.

INSTALLATION INFORMATION

INSTALLATION REQUIREMENTS

TOOLS AND PARTS

Assemble the necessary tools and supplies before beginning the washer installation. The parts supplied are in the washer basket.

Tools needed for connecting the water inlet hoses

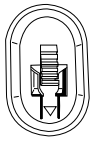
- Pliers (that open to 1-9/16″ [39.5 mm])
- Flashlight (optional)

Tools needed for installation

- Open end wrench 5/8″ (17 mm) and 1/2″ (13 mm)
- Level
- Wood block (2″ x 4″)
- Ruler or measuring tape

Parts supplied

Beaded Strap



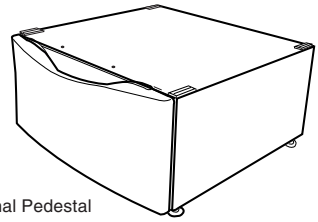
Transport Bolt Hole Plug (4)

Alternate parts

If You Have	You Will Need To Buy
Laundry tub or standpipe taller than 96″ (2.4 m)	Sump pump system (if not already available).
Overhead sewer	Standard 20 gal. (76 L), 30″ (76.2 cm) tall drain tub or utility sink and sump pump (available from local plumbing supplier).
Floor drain	Siphon break, **#285834**; additional drain hose **#8318155**; and connector kit **#285835**.
Drain hose too short	Drain hose extension kit **#285863**.
Water faucets beyond reach of fill hoses	2 longer water fill hoses: 6′ (1.8 m) **#76314**, 10′ (3.0 m) **#350008**.

OPTIONAL PEDESTAL

A pedestal (**LAB2700PMT/LAB2700LQ**) may be purchased separately for this washer. This pedestal will add about 13″ (33 cm) to the height of the unit for a total vertical height of approximately 51″ (130 cm).



Optional Pedestal

OPTIONAL STACK KIT

To stack your washer and dryer, you will need to purchase Stack Kit, Part Number **8541503**.

LOCATION REQUIREMENTS

Selecting the proper location for the washer improves performance, and minimizes noise and possible washer “walk.”

The washer can be installed under a custom counter, or in a basement, laundry room, closet, or recessed area (see “Drain System”).

Companion appliance location requirements should also be considered. Proper installation is your responsibility.

You will need

- A water heater set to deliver 120°F (49°C) water to the washer.
- A grounded electrical outlet located within 5 ft. (1.5m) of where the power cord is attached to the back of the washer (see “Electrical Requirements”).

Continued on the next page.

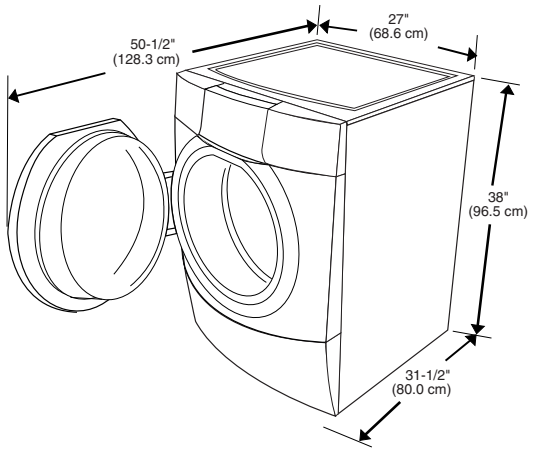
- Hot and cold water faucets located within 4 ft. (1.2 m) of the hot and cold water fill valves, and water pressure of 20-100 psi (137.9-689.6 kPa).
- A level floor with a maximum slope of 1″ (2.5 cm) under entire washer. Installing the washer on carpeting is not recommended.
- A sturdy and solid floor to support the washer with a total weight (water and load) of 400 lbs. (180 kg).

Do not operate your washer in temperatures below 32°F (0°C). Some water can remain in the washer and can cause damage in low temperatures.

Installation Clearances

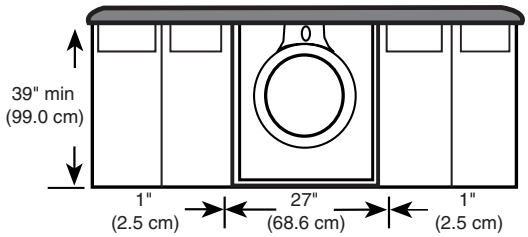
- The location must be large enough to allow the washer door to be fully opened.
- Additional spacing should be considered for ease of installation and servicing.
- Additional clearances might be required for wall, door, and floor moldings.
- Additional spacing of 1″ (2.5 cm) on all sides of the washer is recommended to reduce noise transfer.
- Companion appliance spacing should also be considered.

Washer Dimensions



Custom Undercounter Installation

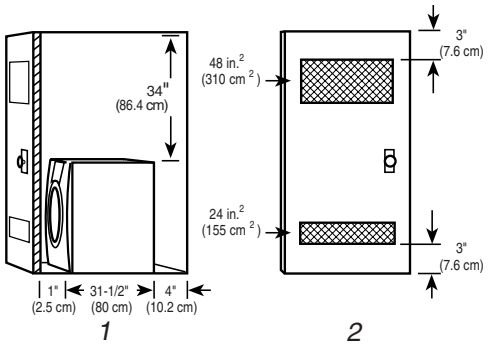
The dimensions shown are for the recommended spacing.



Recessed Or Closet Installation

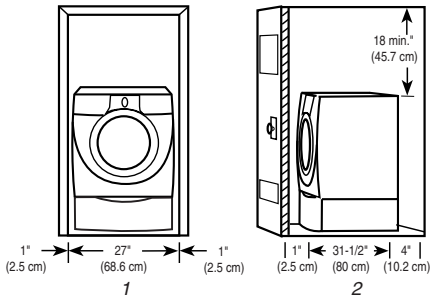
The dimensions shown are for the recommended spacing.

Recessed Area Or Closed Installation



1. Side view - closet or confined area
2. Closet door with vents

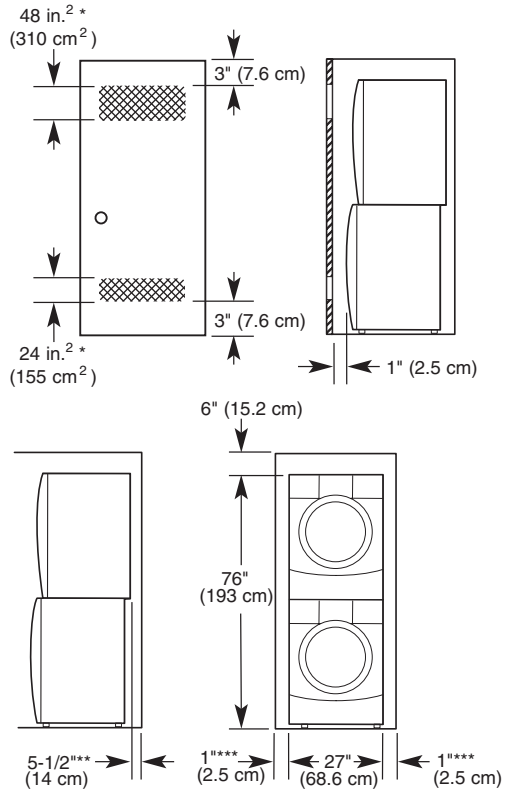
Recessed Or Closet Installation—
Washer On Pedestal



1. Recessed area
2. Side view - closet or confined area

Recessed Or Closet Installation— With Stacked Washer & Dryer

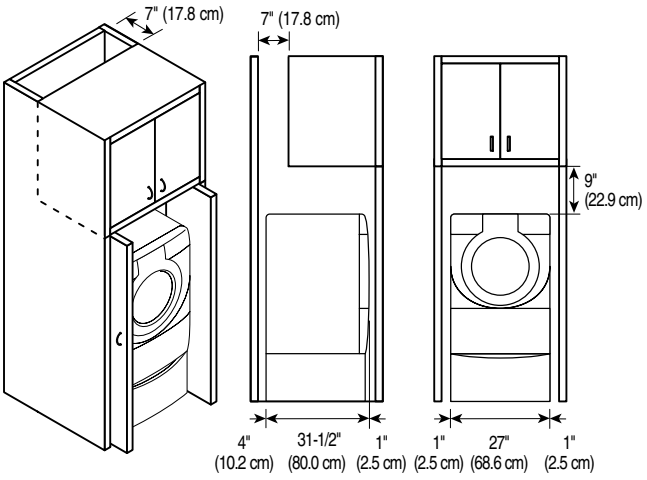
The dimensions shown are for the recommended spacing.



* Min. top and bottom air openings for closet door.
** External exhaust elbow requires additional space.
*** Wall, door and floor molding may require additional spacing.

Cabinet Installation

The dimensions shown are for the recommended spacing. For cabinet installation with a door, the minimum ventilation openings in the top are required.

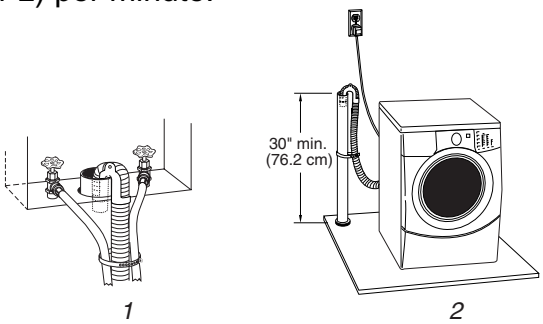


DRAIN SYSTEM

The washer can be installed using the standpipe drain system (floor or wall), the laundry tub drain system, or the floor drain system. Select the drain hose installation method you need (see “Alternate Parts”).

Standpipe Drain System— Wall Or Floor (View 1 & 2)

The standpipe drain requires a minimum diameter standpipe of 2″ (5 cm). The minimum carry-away capacity can be no less than 17 gal (64 L) per minute.



The top of the standpipe must be at least 30″ (76.2 cm) high and no higher than 96″ (2.4 m) from the bottom of the washer.

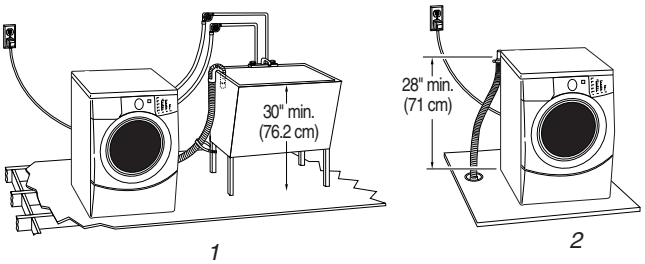
Laundry Tub Drain System (View 1)

The laundry tub needs a minimum 20 gal. (76 L) capacity. The top of the laundry tub must be at least 30″ (76.2 cm) above the floor.

Floor Drain System (View 2)

The floor drain system requires a siphon break that may be purchased separately (see “Alternate Parts ”).

The siphon break must be a minimum of 28″ (71 cm) from the bottom of the washer. Additional hoses might be needed.



ELECTRICAL REQUIREMENTS

⚠WARNING

Electrical Shock Hazard

Plug into a grounded 3 prong outlet.

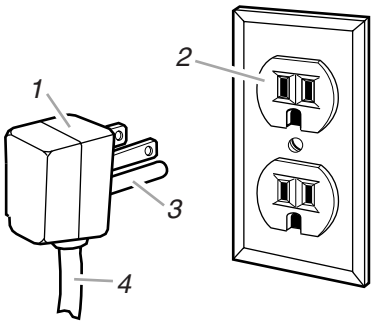
Do not remove ground prong.

Do not use an adapter.

Do not use an extension cord.

Failure to follow these instructions can result in death, fire, or electrical shock.

- A 120-volt, 60-Hz., AC-only, 15- or 20-ampere, fused electrical supply is required. A time-delay fuse, or circuit breaker, is recommended. It is recommended that a separate circuit serving only this appliance be provided.
- This washer is equipped with a power supply cord having a 3 prong grounding plug.
- To minimize possible shock hazard, the cord must be plugged into a mating, 3 prong, grounding-type outlet, grounded in accordance with local codes and ordinances. If a mating outlet is not available, it is the personal responsibility and obligation of the customer to have the properly grounded outlet installed by a qualified electrician.



1. 3 prong grounding plug
2. 3 prong grounding-type wall receptacle
3. Grounding prong
4. Power supply cord

- If codes permit and a separate ground wire is used, it is recommended that a qualified electrician determine that the ground path is adequate.
- Do not ground to a gas pipe.
- Check with a qualified electrician if you are not sure the washer is properly grounded.
- Do not have a fuse in the neutral or ground circuit.

GROUNDING INSTRUCTIONS

For a grounded, cord-connected washer:

This washer must be grounded. In the event of a malfunction or breakdown, grounding will reduce the risk of electrical shock by providing a path of least resistance for electric current. This washer is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

WARNING: Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the appliance is properly grounded.

Do not modify the plug provided with the appliance. If it will not fit the outlet, have a proper outlet installed by a qualified electrician.

For a permanently connected washer:

This washer must be connected to a grounded metal, permanent wiring system, or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the appliance.

INSTALLATION INSTRUCTIONS

Installing The Washer

REMOVE TRANSPORT SYSTEM

⚠WARNING

Excessive Weight Hazard

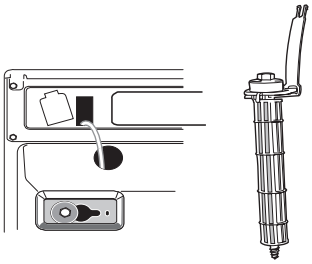
Use two or more people to move and install washer.

Failure to do so can result in back or other injury.

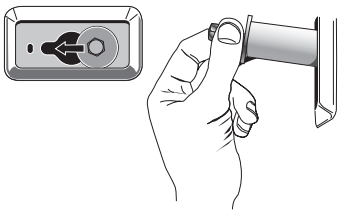
IMPORTANT: Position the washer so that the rear of the unit is within approximately 3 feet (90 cm) of the final location.

There are 4 bolts in the rear panel of the washer that support the suspension system during transportation. These bolts also retain the power cord inside the washer until the bolts are removed. To remove the bolts:

1. Using a 1/2″ (13 mm) wrench, loosen each of the bolts.
2. Once the bolt is loose, move it to the center of the hole, and completely pull out the bolt, including the plastic spacer covering the bolt, and the cable attached to the bolt. The power cord will be attached to all 4 bolts inside the washer.



3. Once all 4 bolts are removed, pull the power cord through the opening of the rear panel, and close the hose with the attached cap.



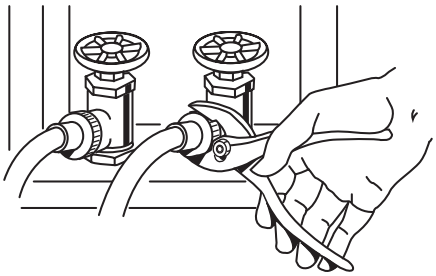
4. Close the bolt holes with the four transport bolt hole plugs.

CONNECT THE INLET HOSES

Connect the inlet hoses to the water faucets.

Make sure the washer basket is empty.

1. Using a pair of pliers, check the tightness of the hose couplings that are attached to the washer. **NOTE:** Do not overtighten the couplings, or damage to the coupling can result.
2. Attach the hose with the red color indicator to the hot water faucet, and the hose with the blue color indicator to the cold water faucet. Screw on the couplings by hand until they are seated on the washer.
3. Using a pair of pliers, tighten the couplings an additional two-thirds turn. **NOTE:** Do not overtighten the couplings, or damage to the coupling can result.



4. Turn on the water and check the couplings for leaks.

NOTE: Replace the inlet hoses after 5 years of use to reduce the risk of hose failure. Record the hose installation, or replacement dates on the hoses for future reference. Periodically inspect and replace hoses if bulges, kinks, cuts, wear, or leaks are found.

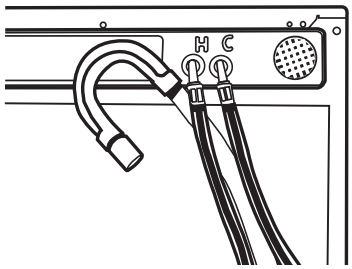
ROUTE THE DRAIN HOSE

The drain hose is connected to your washer. Proper routing of the drain hose protects your floors from damage due to water leakage.

Carefully read and follow these instructions.

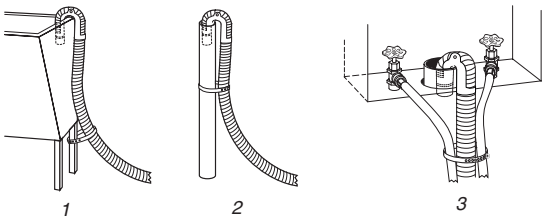
To prevent drain water from going back into the washer:

- Do not straighten the drain hose, and do not force excess drain hose into the standpipe. The hose should be secure, but loose enough to provide a gap for air.
- Do not lay excess hose on the bottom of the laundry tub.



SECURE THE DRAIN HOSE

1. Drape the power cord over the washer top.
2. Secure the drain hose to the laundry tub leg, or to the standpipe with the beaded strap that is provided.



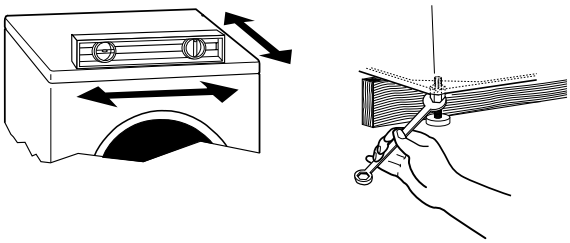
If the washer faucets and the drain standpipe are recessed, place the hooked end of the drain hose in the standpipe. Tightly wrap the beaded strap around the water inlet and drain hoses.

NOTE: Do not force excess drain hose into the standpipe.

LEVEL THE WASHER

Properly leveling your washer prevents excessive noise and vibration. To level the washer:

1. Check the levelness of the washer by placing a level on the top edge of the washer, first side-to-side, then front-to-back.



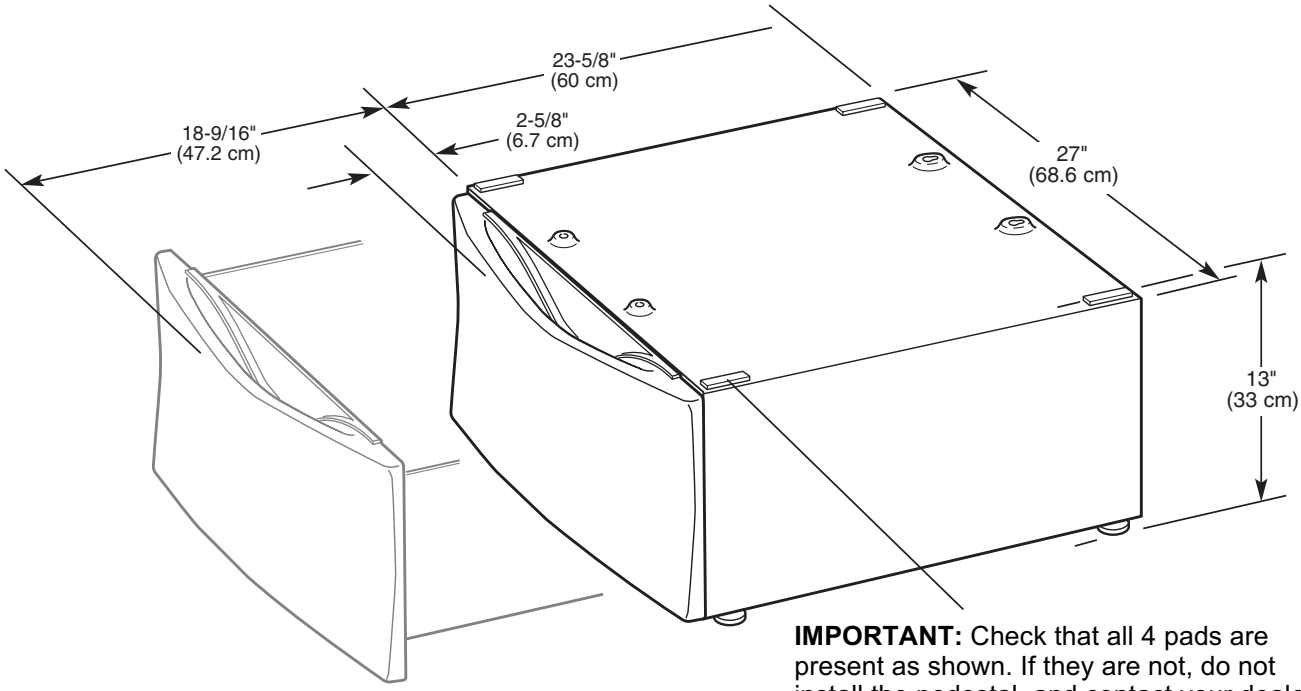
If the washer is against a wall, move the washer out slightly before tipping back. If the washer is not level, first prop the front with a wood block (2″ x 4″) and adjust the feet as necessary; then prop the back and adjust feet as necessary. Repeat this step until washer is level.

2. After the washer is level, use a 5/8″ (17 mm) open-end wrench to turn the nuts on the feet tightly against the washer cabinet. All 4 feet must be tightened. If the nuts are not tight against the washer cabinet, the washer may vibrate.
3. Slide the washer to its final location.
4. Confirm the levelness of the washer.

COMPLETE THE INSTALLATION

1. Check the electrical requirements. Be sure that you have the correct electrical supply and the recommended grounding method (see “Electrical Requirements”).
2. Check to be sure all parts are now installed. If there is an extra part, go back through the steps to see which step was skipped.
3. Check to be sure you have all of your tools.
4. Dispose/recycle all packaging materials.
5. Check to be sure the water faucets are on.
6. Check for leaks around faucets and inlet hoses.
7. Plug into a grounded 3 prong outlet.

INSTALLING THE WASHER ON THE PEDESTAL



IMPORTANT: Check that all 4 pads are present as shown. If they are not, do not install the pedestal, and contact your dealer.

UNINSTALLING THE WASHER

⚠WARNING

Excessive Weight Hazard

Use two or more people to move and uninstall washer.

Failure to do so can result in back or other injury.

IMPORTANT: If the washer is already installed, it must be uninstalled. See Installation Instructions that came with the washer for tools required.

1. Turn off the hot and cold water to the washer.
2. Unplug the power supply cord.
3. Slowly loosen the fill hoses at the faucets to relieve the water pressure.
4. Remove the “HOT” and “COLD” fill hoses from the back of the washer. Drain water in the hoses into a bucket.
5. Squeeze the ears of the drain hose clamp with pliers to open and slide the clamp down the hose. Disconnect the drain hose from the washer and drain any water in the hose into a bucket.
6. Pull the washer away from the wall so it can be tipped on its back.
7. Protect the floor with a large piece of cardboard cut from the pedestal carton. Lay the washer on its back so that the cardboard is under the entire lower back edge of the washer.

INSTALLING THE PEDESTAL

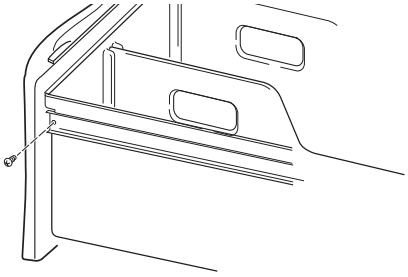
⚠WARNING

Excessive Weight Hazard

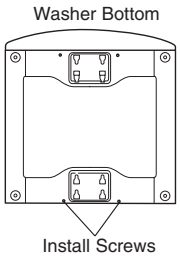
Use two or more people to move and install pedestal.

Failure to do so can result in back or other injury.

1. Open the pedestal drawer, and remove the envelope taped inside the drawer. This envelope contains four (4) #12 x 5/8″ (1.6 cm) hex-head sheet metal screws that will be used in step 4.
2. Remove the phillips screw from both drawer slides and save the screws. Remove the drawer from the slides and set it aside. Push the drawer slides back into the pedestal.



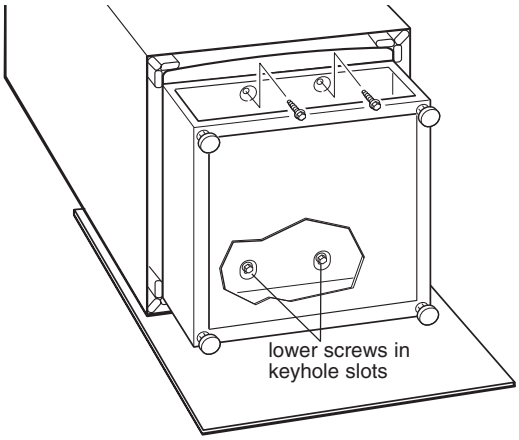
3. Remove the four feet from the washer, but **DO NOT** install the feet that were supplied with the new washer.
4. Partially install the two lower hex-head sheet metal screws. Leave a space of about 3/8″ (1 cm) between the screw head and the bottom of the washer.



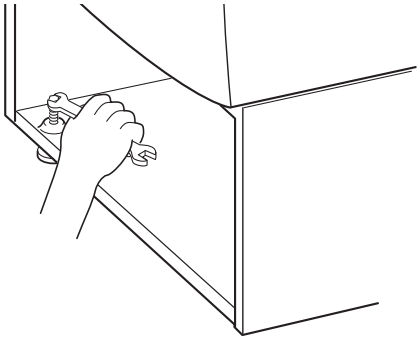
5. Move the pedestal against the washer bottom, and slide the pedestal's keyhole slots over the lower two partially installed screws.

   Position the pedestal toward the front of the washer and install the two remaining hex-head sheet metal screws. **Do not tighten completely.**

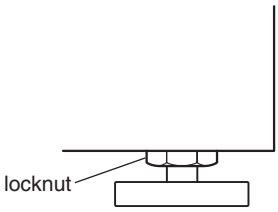
   Align the sides of the pedestal so that they are even with the sides of the washer. Reach inside the pedestal drawer opening, and securely tighten all four pedestal screws.



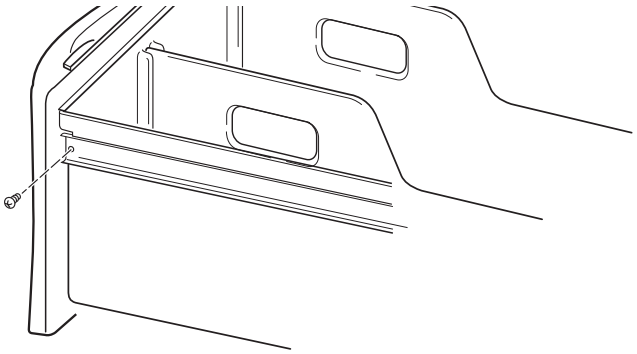
6. Tip the washer and pedestal assembly back to an upright position and remove protective cardboard.
7. Slide the washer close to its final location.
8. Follow the Installation Instructions that were supplied with the washer, and finish installing or reinstalling the unit.
9. Locate the 1/4″ hex nut on the top of each pedestal foot. Reach inside the pedestal and use a ratchet or open-end wrench, and adjust the feet up or down, as necessary to level the washer and pedestal.



10. When the washer is level, use a 9/16″ open-end wrench to securely tighten the locknuts on all four feet against the pedestal.



11. Pull both drawer slides out and reassemble the drawer to the drawer slides with the two (2) phillips screws you removed earlier. **NOTE:** Use of the two (2) dividers is optional.
12. Close the pedestal drawer.



— NOTES —

PRODUCT OPERATION

THEORY OF OPERATION

INTRODUCTION

The KitchenAid Ensemble Front-Loading Automatic Washer presents a number of new features and operating characteristics quite different from previous models. In addition to the introduction of front-loading operation, the washer contains a number of unique operating features designed to increase clothes cleaning ability while offering very high water and energy conservation.

WATER SYSTEM

The water system consists of the hot and cold water inlet valves, a water temperature sensor, a water flowmeter and control, and the dispenser distribution system along with a traditional pressure switch.

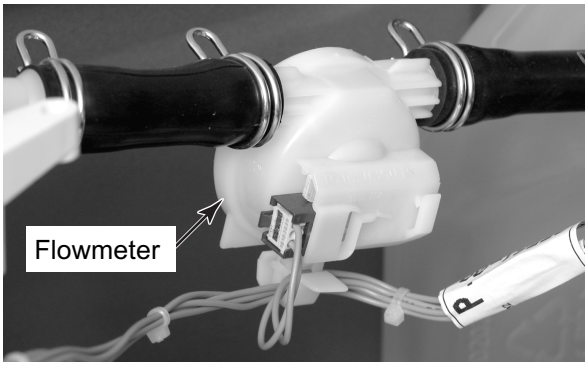
WATER INLET VALVES

The hot and cold water inlet valves are located at the back of the washer. These valves receive a control signal from the Central Control Unit to manage the temperature of incoming water. The temperatures are determined by the specific wash cycle selected and a temperature sensor located in the wash tub. To improve cleaning of heavily soiled clothing and to provide a sanitizing feature, the water temperature can be increased through the use of a heating element located in the bottom of the tub.

FLOWMETER

Water flow, or the quantity of water introduced throughout any cycle, is monitored by a flowmeter and Central Control Unit. When the flowmeter registers a maximum of 10.5 gal (40 L), and the Central Control Unit has not detected the pressure switch trip, the water valves will be shut off and an error code will show in the digital display.

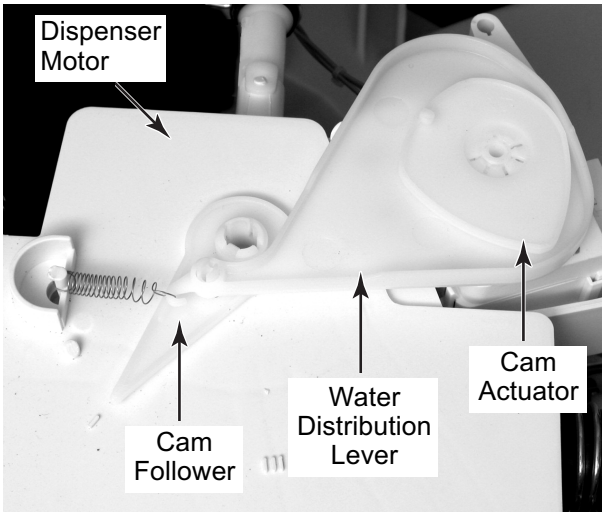
The flowmeter is also used to introduce additional water into the tub for higher water levels, based on cycle requirements.



DISPENSER DISTRIBUTION SYSTEM

All wash and rinse water is introduced into the wash tub through a Dispenser Distribution System located in the top left corner of the washer. The system consists of a motor that turns a cam gear. The cam follower will divert the incoming water to one or more of the follow water inlet modes:

- Detergent Dispensing
- Bleach Dispensing
- Fabric Softener Dispensing
- Rinse Dispensing (no additives)

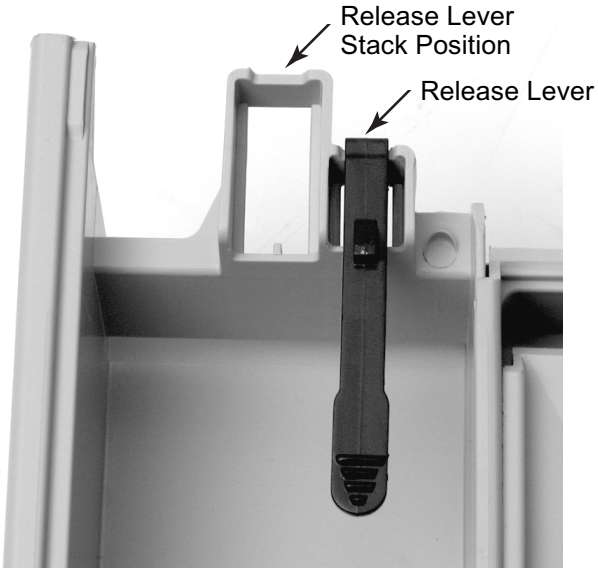


The dispenser drawer has four separate compartments for adding laundry products to the wash load. These compartments are:

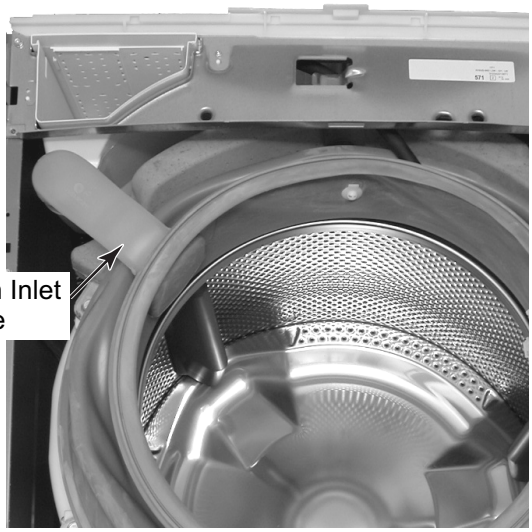
1. Prewash Detergent Compartment
2. Main Wash Detergent Compartment
3. Bleach Compartment
4. Fabric Softener Compartment

Laundry products are diluted and dispensed automatically at the proper time during the wash cycle. The separator in the Prewash and Main Wash Detergent Compartment can be moved to accommodate either liquid or powdered detergents.

The drawer release lever can be installed in the stack position to accommodate stacking a matching dryer on top of the washer.

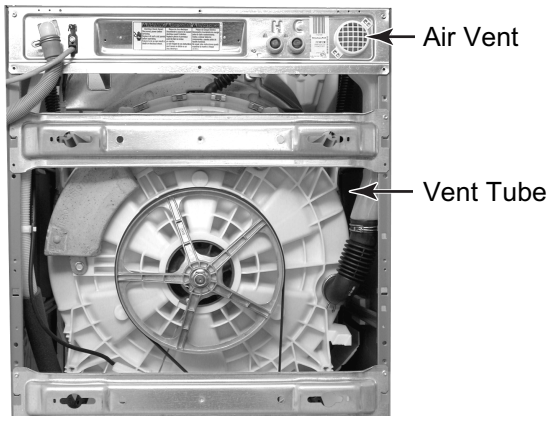


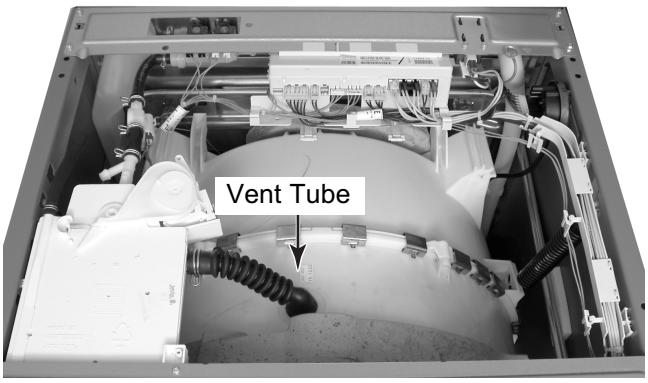
The water enters the wash tub through the main inlet tube.



AIR VENT SYSTEM

As a safety feature, the washer is designed to allow fresh air to circulate through the tub. An inlet vent at the rear of the washer brings air into the tub. The fresh air is vented through the dispenser assembly vent tube and out the front of the dispenser drawer cutout.



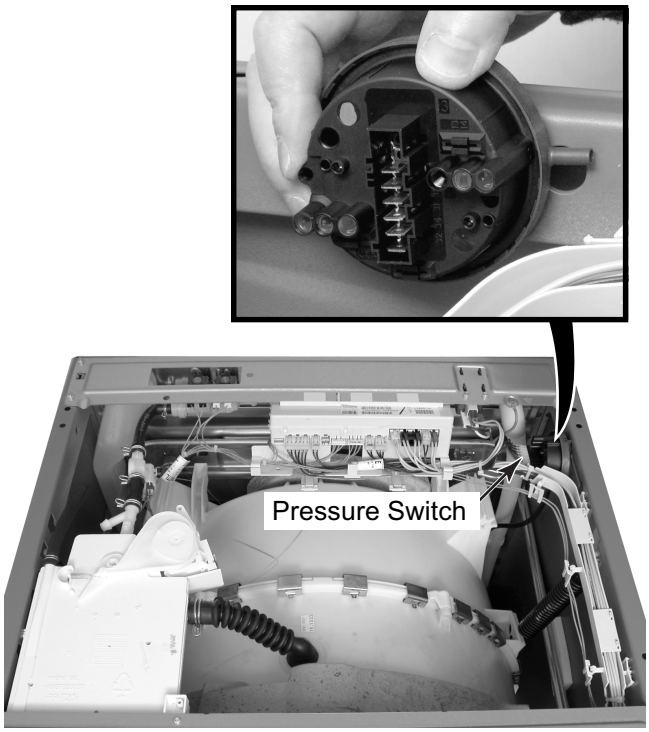


PRESSURE SWITCH

The pressure switch is located in the top right rear corner of the washer. This switch senses water level in the wash tub. The control signal from the pressure switch is sent to the Central Control Unit and is used to determine the amount of water introduced into the wash tub during the wash cycle.

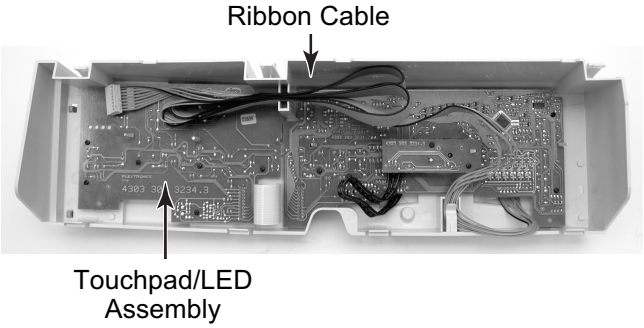
The pressure switch also senses the suds level in the wash tub. If excessive sudsing occurs, the washer starts an automatic suds routine. The display will show the word “Sud.” The automatic suds routine adds additional rinse and drain operations until the suds level is reduced.

If an overfill condition is detected by the pressure switch, the CCU will turn on the drain pump and attempt to stop filling.



TOUCH PAD/LED ASSEMBLY

The Touch Pad/LED Assembly is removed as a single assembly and is connected to the Central Control Unit by a ribbon cable. This assembly contains all of the buttons, LEDs and ribbon cable and printed circuit boards for the user to operate the washer. This interfaces the consumer inputs to the Central Control Unit.

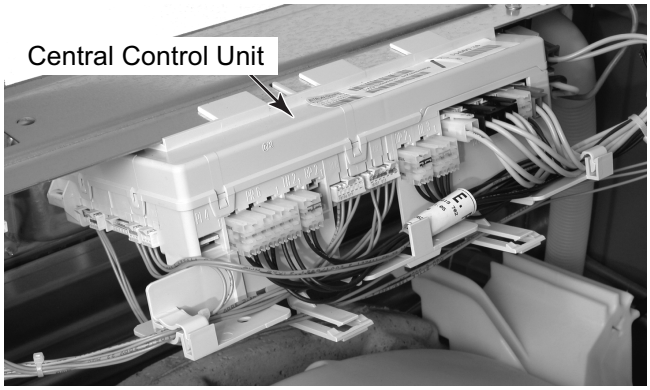


CENTRAL CONTROL UNIT (CCU)

The Central Control Unit is located at the top rear of the washer and is enclosed in a control box. There are no serviceable parts inside the control box. If diagnostic tests indicate any component of the CCU is defective, the entire control box must be replaced.

The CCU receives input from the touchpad/ LED assembly and directly controls the dispenser, drain pump, water inlet valves, door locking and unlocking solenoids, and heating element relay. The CCU monitors the pressure switch, flowmeter, temperature sensor and door lock switches.

The CCU sends the customer selection input to the Motor Control Unit for proper motor operation.



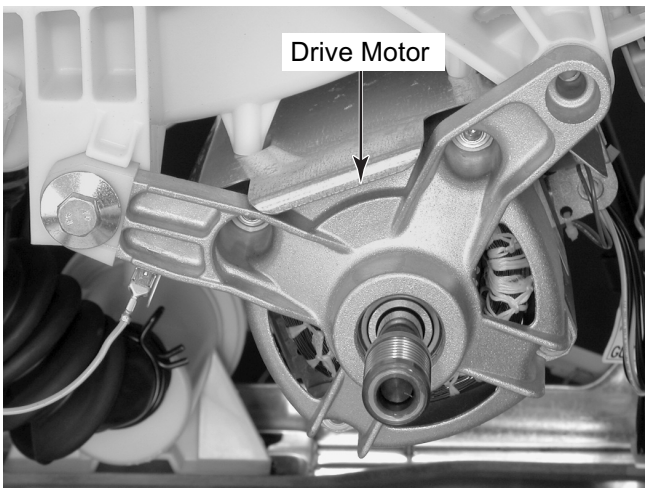
MOTOR CONTROL UNIT (MCU)

The Motor Control Unit is located inside a plastic control box located in the lower front corner of the washer cabinet. The control box is shown with the access door open.

The MCU operates the drive motor at varying speeds and direction based on inputs received by the CCU to complete the cycle selected. The MCU also monitors a tachometer on the motor to confirm that the drive motor is operating at the proper speed and direction.

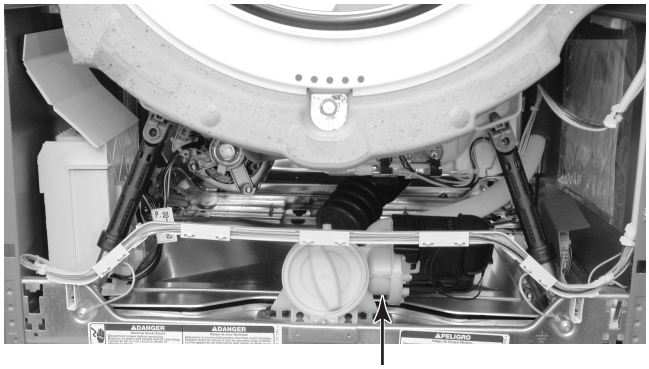
DRIVE MOTOR

The drive motor is a three-phase asynchronous induction type that operates at various speeds and direction based on input voltages and frequencies. A tachometer on the motor shaft sends a feedback signal to the Motor Control Unit indicating the rotation speed and direction.



PUMP MOTOR

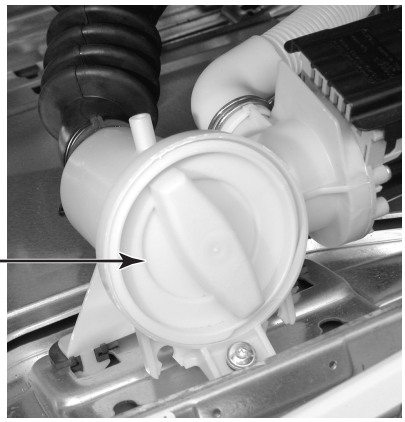
A separate pump/pump motor is used to drain the wash tub.



Pump Motor

The pump motor is 120 VAC and is attached directly to the pump. The pump has a cleanout filter located at the front that allows for the removal of large objects that may have passed from the basket.

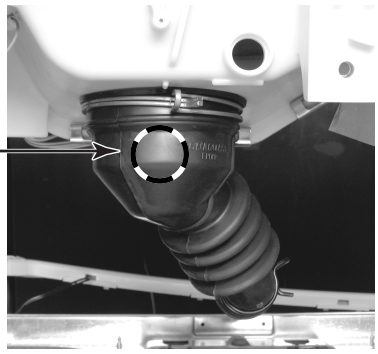
Large Object Filter



ECO VALVE

The washer has a specially designed floating (ball) valve that closes during the wash portion of the cycle so that 100% of the water and detergent mixture is used on the wash load. The Eco Valve insures that no water or detergent is wasted.

Floating (Ball) Valve



SUSPENSION SYSTEM

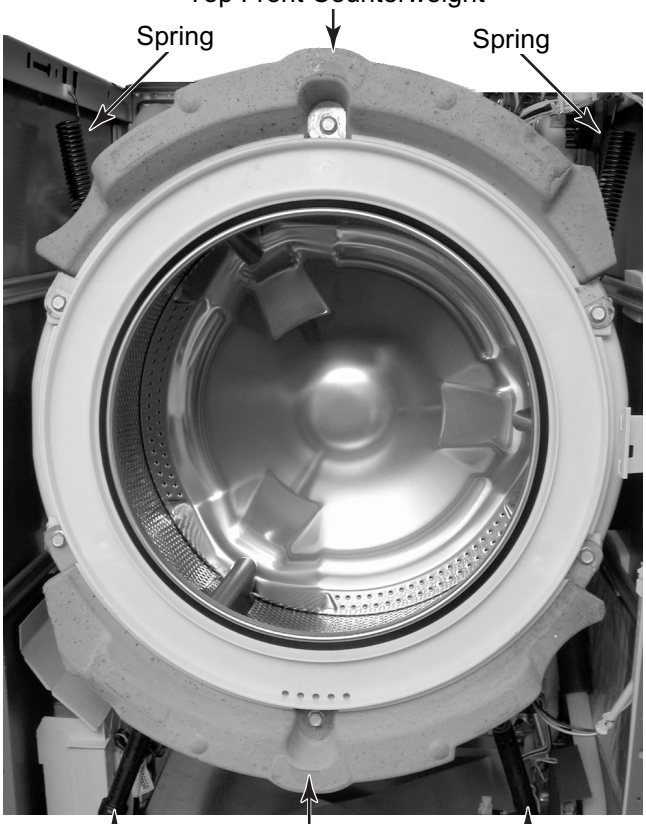
The wash tub is held in position with four shock absorbers attached to the bottom four corners of the tub assembly. In addition, the wash tub is suspended from the top frame of the washer with two springs attached to the sides of the unit.

Stability for this suspension system is provided by three concrete counter weights. Two are located at the front of the wash tub. One is positioned at the back of the tub. These counter weights eliminate the need for the traditional balance ring.

Top Front Counterweight

Spring

Spring

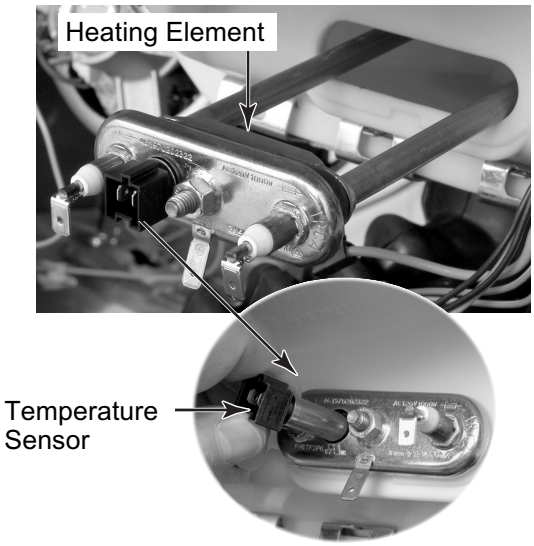


Bottom Front Counterweight

Front Shock Absorbers

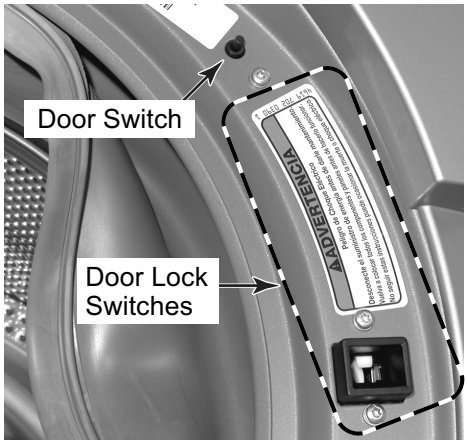
HEATING ELEMENT & TEMPERATURE SENSOR

A heating element is used to increase the water temperature during certain wash cycles. The temperature sensor is used with the heater to monitor water temperature in the tub.

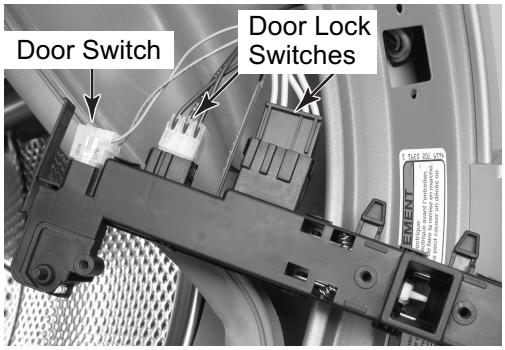


DOOR LOCK/SWITCH ASSEMBLY

The Door Lock/Switch Assembly is located on the right side of the door opening.

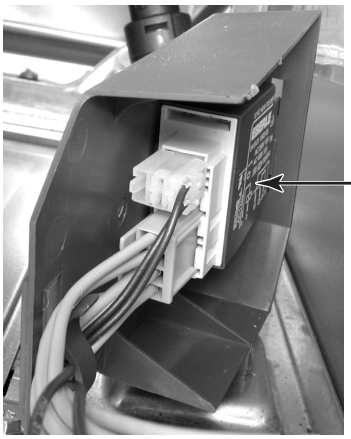


The assembly contains a solenoid operated latching mechanism that will electrically lock the door during a wash cycle.



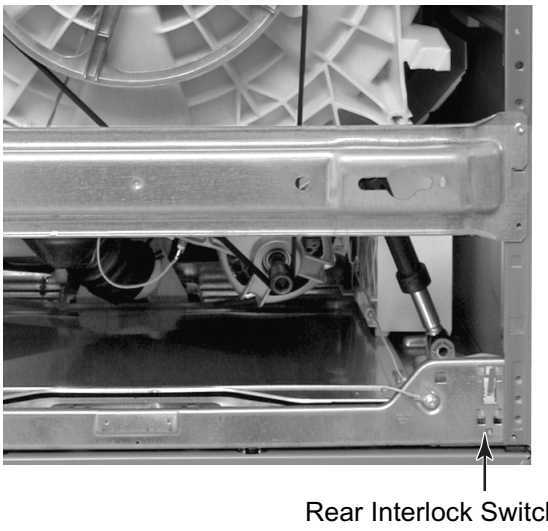
HEATING ELEMENT RELAY

A relay is used to turn the heating element on and off. The heating element relay is located in the lower right-hand side of the washer cabinet. The CCU operates a solenoid to close the main relay contacts, providing 120 VAC to the heating element.



INTERLOCK SWITCHES

The front and rear interlock switches are located immediately behind the toe and rear panels of the washer. The switches provide a grounding circuit to the drive motor and heating element when either panel is removed for servicing.



CUSTOMER INTERFACE & CYCLE SELECTION

Control On - This button must be pressed before initiating any cycle selection.

Status Indicators - Show which portion of the cycle the washer is operating. They also indicate when additional items can be added to the wash cycle and when the controls are locked.

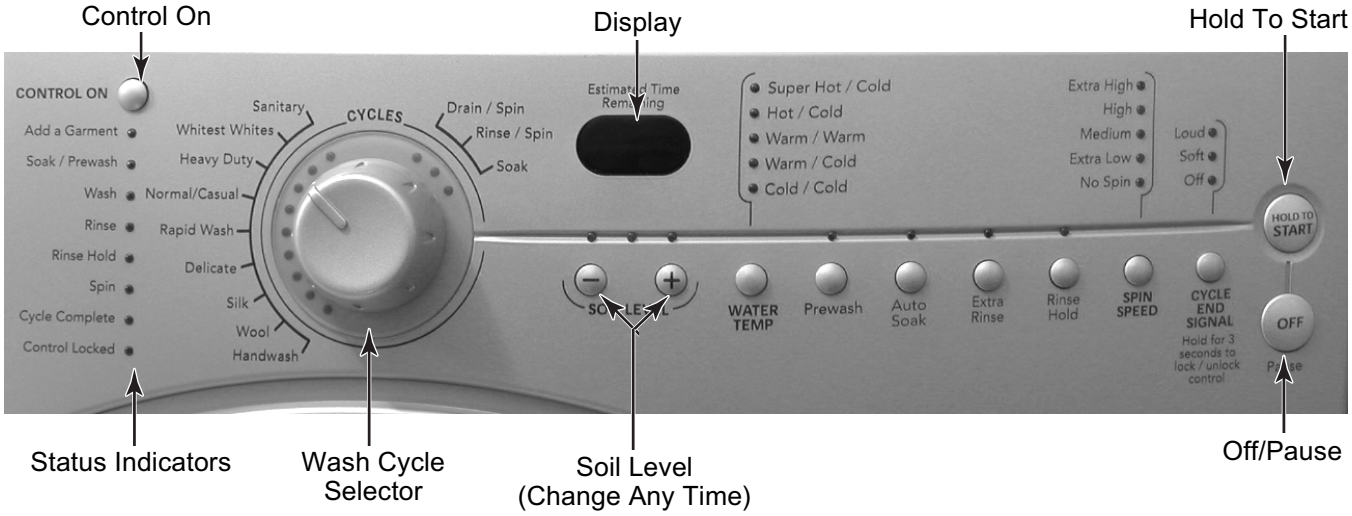
Wash Cycle Selector - Selects the various Wash Cycles. Each cycle is designed for different types of fabric and soil levels (see the "Preset Cycle Settings"- table on Page 3-9).

Display - Provides information, such as the time remaining for selected wash cycle and various error codes.

Soil Level - Changes the length of the wash cycle. "+" will add time to a normal wash cycle; "–" will shorten a normal wash cycle.

Hold-To-Start - Initiates a wash cycle. Press and hold the START button for one second.

OFF/Pause - Pressing this button will allow changing any option, or changing a wash cycle after the wash cycle has begun. Press the OFF/Pause button, select the desired option, and press and hold the START button for 1 second. To cancel a cycle and select a new one, press the OFF/Pause button, select the new cycle, select the desired options, and press and hold the START button for 1 second.



CYCLES

Sanitary - Cleans heavily soiled colorfast fabrics. This cycle combines a super hot water temperature and fast speed tumbling to help ensure the removal of heavy soils and stains. It is recommended that you set your hot water heater to 120°F (49°C) to ensure proper performance during this cycle. The Sanitary cycle also helps kill bacteria, even when no bleach is used. Extra high speed spin helps shorten drying time.

Whitest Whites - Designed for cleaning loads of soiled white fabrics with the addition of bleach. Hot washing temperatures assure optimal bleach activity. An additional rinse provides optimal rinse performance to avoid chlorine residues on your laundry. This cycle combines fast speed tumbling, longer wash time, and extra high speed spin to shorten drying time.

Heavy Duty - Washes loads of sturdy, colorfast fabrics, and heavily to normally soiled garments. This cycle combines fast speed tumbling, longer wash time, and extra high speed spin to shorten drying times. If the water temperature is lower than needed for this cycle, the heater will warm the water to the optimum temperature.

Normal/Casual - Washes normally soiled cottons and linens. This cycle combines medium speed tumbling and high speed spin.

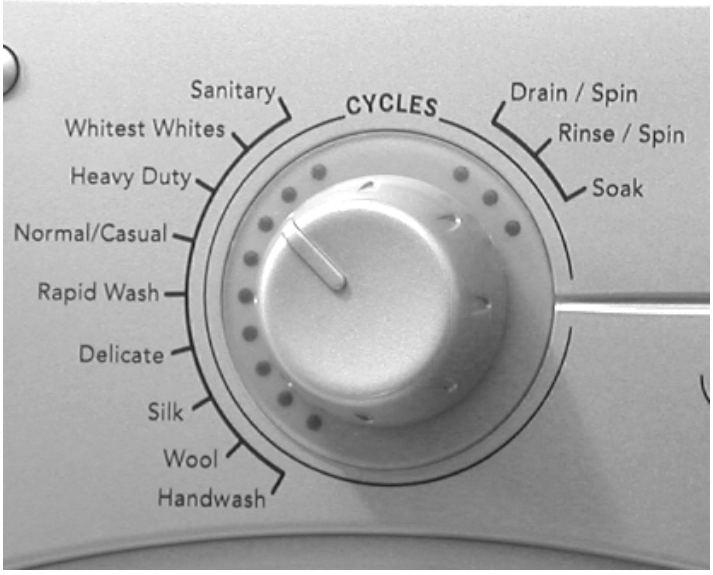
Rapid Wash - Washes small loads of lightly soiled garments that are needed in a hurry. This cycle combines fast speed tumbling, a shortened wash time, and extra high speed spin to shorten drying time.

Delicate - Washes no-iron fabrics in garments labeled “Permanent Press,” or “Wrinkle Free,” or that indicate using a “Gentle” cycle on the care label. This cycle combines low speed tumbling and low speed spin to reduce wrinkling.

Silk - Cleans washable silk garments. (Check label instructions to make sure that garment is washable.) This cycle gently tumbles and drains without spinning to gently clean garments and minimize wrinkling. Since there is no spinning action, garments will contain a higher amount of water at the end of this cycle.

Wool - Cleans washable woolen garments. (Check label instructions to make sure that garment is washable.) This cycle features gentle tumbling and low speed spin to provide optimum garment care.

Handwash - Cleans hand-washable and special-care garments. Similar to the way garments are hand washed in a sink, the wash action of this cycle combines periods of low speed tumbling and soaking. The low speed spin reduces wrinkling.



Soak - Removes small spots of set-in stains on fabrics. This cycle provides a soak time with warm or cold water, and then drains the water. Extra water, a short tumbling phase for equal distribution of the laundry, and a soaking time without basket movement, improves the removal of set-in stains. Drain without spin assures gentle treatment, even for delicate articles.

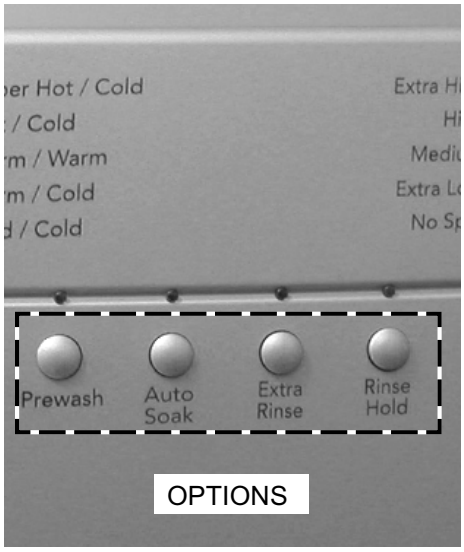
Rinse/Spin - Provides rinse and spin only. This cycle combines fast speed tumbling and extra high speed spin. If desired, you can reduce the spin speed by selecting the speed you want from the SPIN SPEED modifier. A Rinse/Spin cycle is useful for loads that need rinsing only or for adding fabric softener to a load.

Drain/Spin - Drains the washer, or drains and spins a wash load. The spin speed is preset to extra high. If desired, you can reduce the spin speed by selecting the speed you want from the SPIN SPEED modifier. **NOTE:** Loads of synthetics, delicate fabrics, handwashables, and woolens should be drained with no spin or low spin speed to avoid fabric stress.

PRESET CYCLE SETTINGS			
Cycle	**Soil Level (Cycle Time)**	**Water Temp**	**Spin Speed**
Sanitary	Normal (1:55)	Super Hot/Cold	Extra High
Whitest Whites	Normal (1:00)	Hot/Cold	Extra High
Heavy Duty	Normal (1:15)	Hot/Cold	Extra High
Normal/ Casual	Normal (0:40)	Warm/Cold	High
Rapid Wash	Less Soil (0:40)	Warm/Cold	Extra High
Delicate	Normal (0:35)	Warm/Cold	Medium
Silk	Normal (0:26)	Cold/Cold	No Spin
Wool	Normal (0:30)	Cold/Cold	Medium
Handwash	Normal (0:30)	Cold/Cold	Extra Low
Soak	Normal (0:30)	Warm/Cold	No Spin
Rinse/Spin	Normal (0:21)	Cold/Cold	Extra High
Drain/Spin	Normal (0:11)	N/A	Extra High

OPTIONS

You can customize your wash by adding “Options” to your cycle selections. You can add or change an option after starting a cycle anytime before the selected option begins.



- You can select more than one option for a cycle. Some options cannot be added to some cycles.
- If an option is available with a selected cycle, the light for that option will glow when selected.
- If an option is unavailable with a selected cycle, there will be a short tone and the light for that option will not glow when selected.

Prewash - For heavily soiled loads that need pretreatment. This option adds a 15 minute prewash and drain to the main wash cycle.

- Add detergent to the Prewash and Main Wash compartments of the dispenser drawer.
- When using Prewash, do not use liquid detergent in the Main Wash compartment. Use powdered detergent for the main wash cycle.

NOTE: The Prewash and Auto Soak options cannot be selected in the same cycle.

Auto Soak - For loads of heavily soiled cotton, linen, polyester or nylon with set-in stains. During Auto Soak, water will be added to the basket and the laundry will be equally distributed by a short tumbling phase. Laundry will then be soaked in phases without basket movement. After soaking, the washer drains without spinning.

- Add detergent to both the Prewash and Main Wash compartments of the dispenser drawer.
- Use powdered detergent for the main wash cycle, because liquid detergent will seep into the washer during Auto Soak.
- For cycles with hot wash temperatures, the soak temperature will be set to WARM; otherwise, the soak temperature will be the same as the wash temperature.
- The Auto Soak and Prewash options cannot be selected in the same cycle.

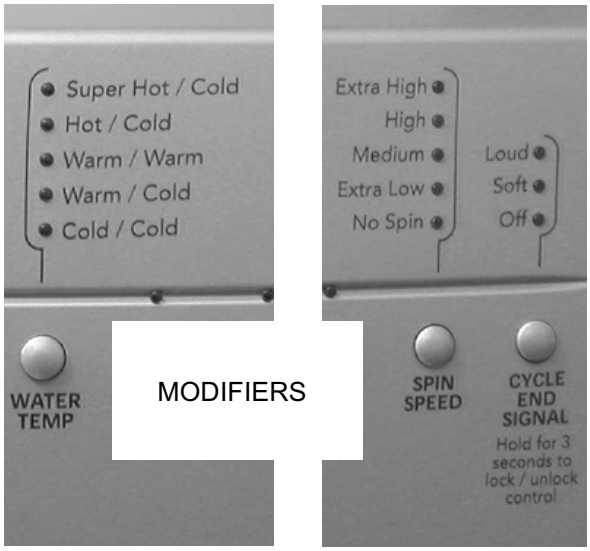
Extra Rinse - Used to ensure the removal of detergent or bleach residue from garments. This option provides an additional rinse with the same water temperature as the first rinse.

Rinse Hold - Use this option to avoid wrinkling of your laundry when a load cannot be removed from the washer immediately. The wash cycle is paused before the final drain and spin phase so that the laundry stays in the rinse water until the cycle is continued. This provides optimal wrinkle care of your wet laundry. The door stays locked during the Rinse Hold cycle, and the indicator light will flash. Press RINSE HOLD to finish the cycle and unload the washer.

MODIFIERS

Preset cycle settings for Water Temperature, Wash/Rinse, and Spin Speed can be changed. You can change a modifier after starting a cycle anytime before the selected modifier begins.

- To change the water temperature, select the WATER TEMP button until the desired setting glows.
- To change the spin speed, select the SPIN SPEED button until the desired setting glows.
- To change the loudness of the End of Cycle Signal, select CYCLE END SIGNAL.



- To change cycle time, select SOIL LEVEL button.

Wash/Rinse Temp - Select a water temperature based on the type of load being washed. Use the warmest water safe for fabrics. Follow garment label instructions.

Warm rinses leave the loads dryer than cold rinses. Warm rinses increase wrinkling. In cold climates, a warm rinse makes the load more comfortable to handle. Cold rinses save energy.

WATER TEMPERATURE GUIDE	
Wash Water Temperature	**Suggested Fabrics**
Super Hot 153°F (67°C)	Sturdy colorfast fabrics Heavy soils
Hot 122°F (50°C) or above	Whites and pastels Heavy soils
Warm 104°F (40°C)	Bright colors Moderate to light soils
Cold 77°F (25°C)	Colors that bleed or fade Light soils

Automatic Temperature Control (ATC) - Electronically senses and maintains a uniform water temperature. ATC regulates incoming hot and cold water. ATC is automatically turned ON when a cycle is selected.

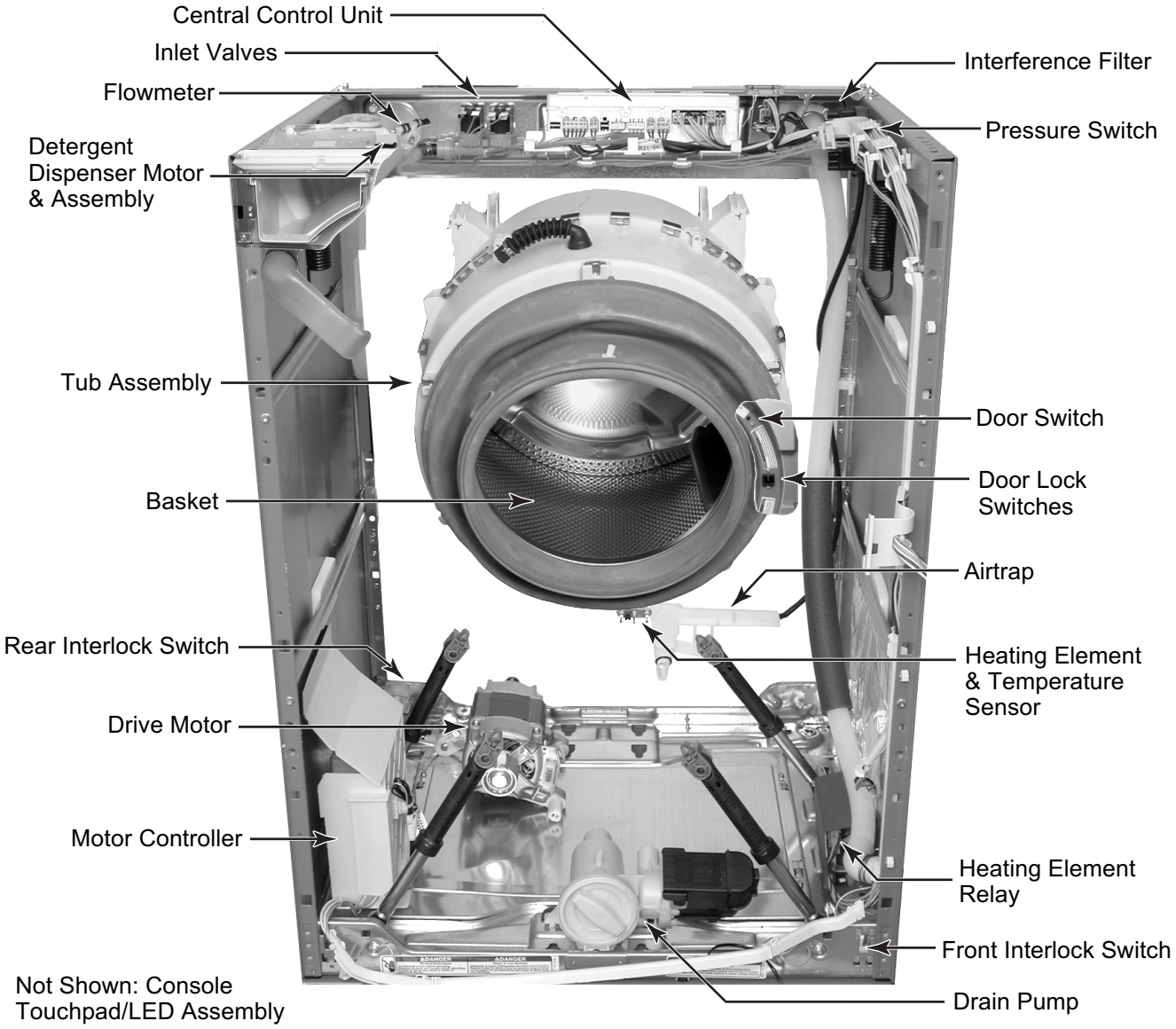
- ATC ensures consistent cleaning.
- ATC works for all wash and rinse temperature settings.

— NOTES —

COMPONENT ACCESS

This section instructs you on how to service each component inside the KitchenAid Ensemble Front-Loading Automatic Washer. The components and their locations are shown below.

COMPONENT LOCATIONS



REMOVING THE CONSOLE AND THE TOUCHPAD / LED ASSEMBLY

⚠WARNING

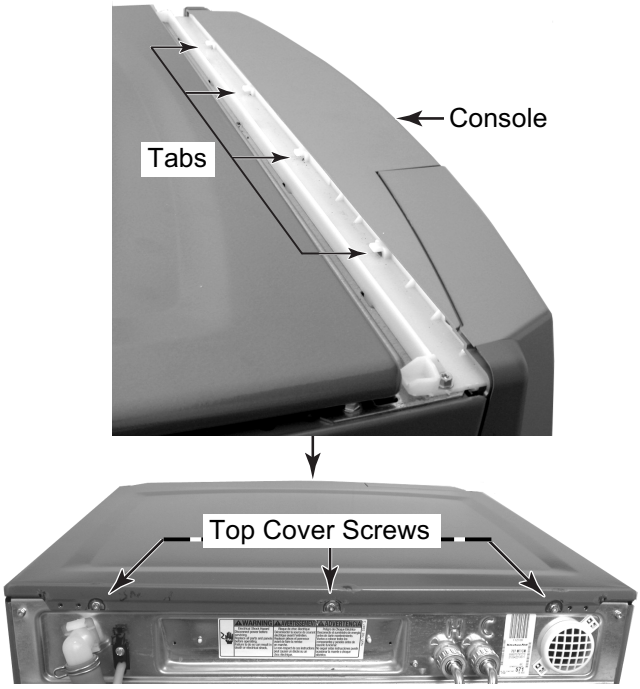
Electrical Shock Hazard

Disconnect power before servicing.

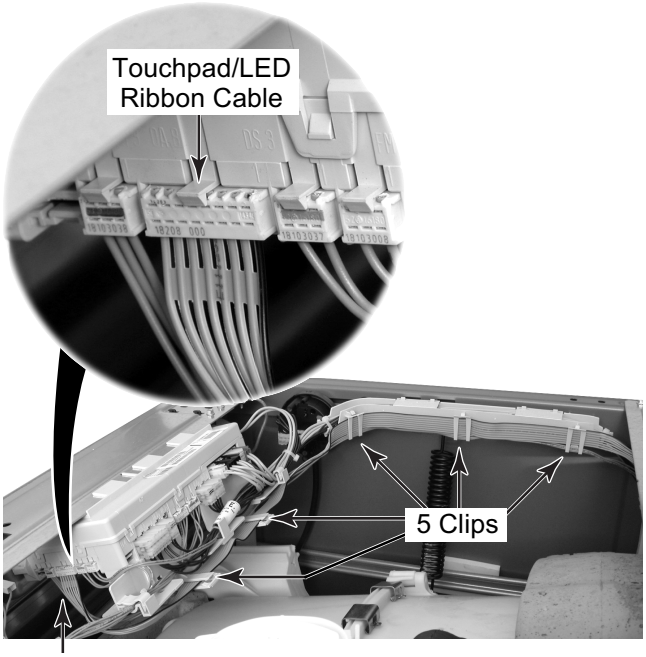
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

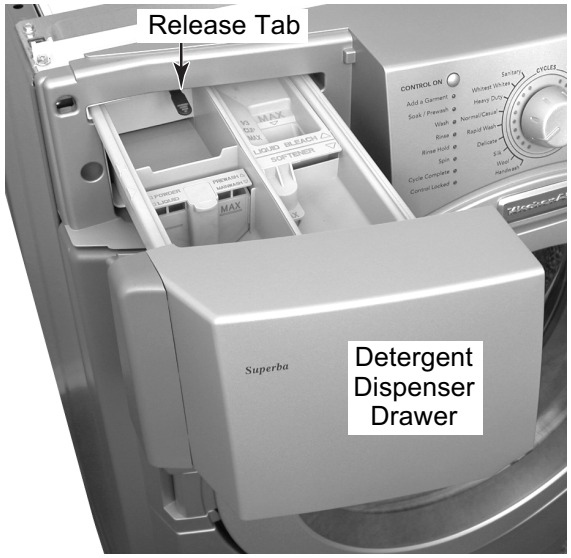
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the three T-20 hex-head torx screws from the top cover of the washer.
4. Pull back on the cover and release the tabs in the console from the slots in the cover, then lift the cover off the unit.



5. **To remove the console:**
   a) Lift the locking tab and disconnect the ribbon cable connector from the central control unit.
   b) Remove the ribbon cable from the five clips.

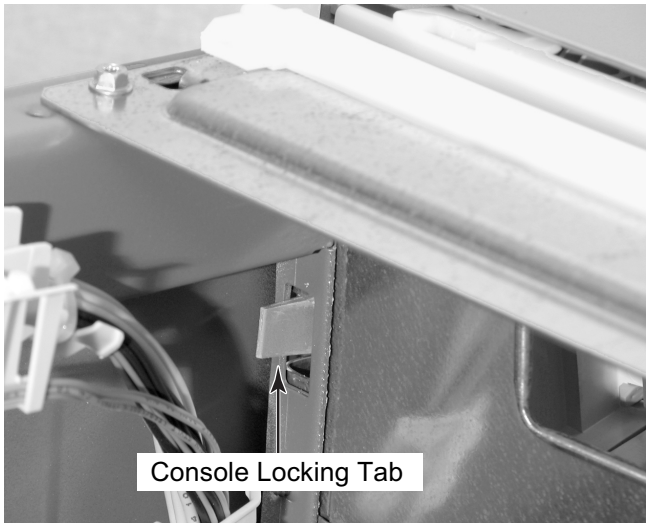


   c) Pull the detergent dispenser drawer out as far as it will go, then press down on the release tab, and remove the drawer from the unit.

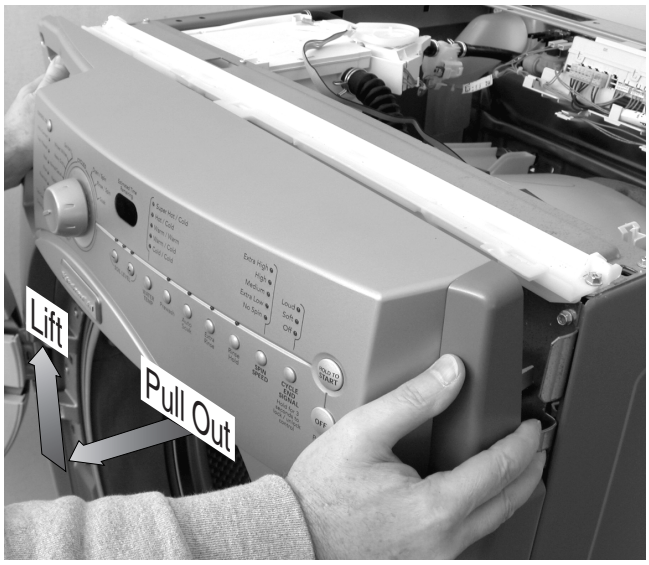


d) Remove the T-20 torx screw from the recessed hole of the console.

e) Press the locking tab on the right rear side of the console, and pull out on the console to disengage the tab from its slot.



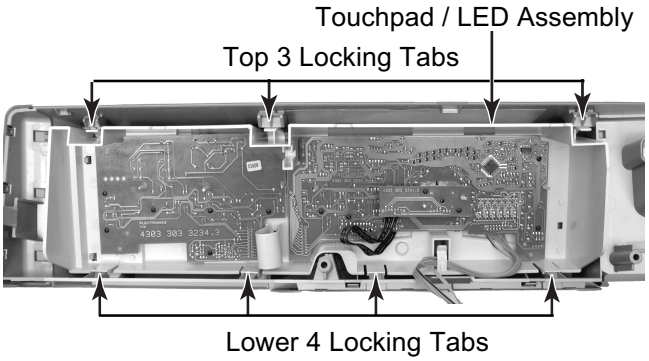
f) Pull out at the bottom of the console and lift it to unhook the top edge from the cabinet, and remove the console.



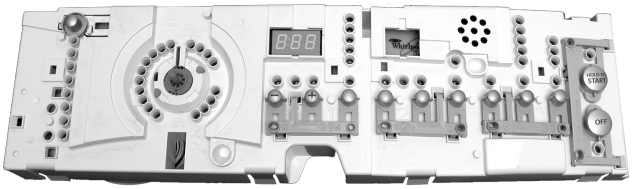
6. **To remove the touchpad / LED assembly:**

a) Use a small screwdriver and unsnap the three top locking tabs from the touchpad/LED assembly.

b) Starting from the right, unsnap the four lower locking tabs from the touchpad/LED assembly, and lift the assembly from the console. **NOTE:** If the push-buttons are attached to the assembly, unsnap them from the old assembly, and install them on the console at their correct locations.

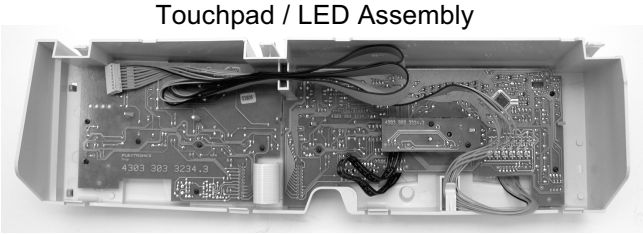


Touchpad / LED Assembly



FRONT VIEW

Touchpad / LED Assembly



BACK VIEW

REMOVING THE DOOR LOCK / SWITCH ASSEMBLY, AND THE FRONT PANEL & BELLOWS

⚠WARNING

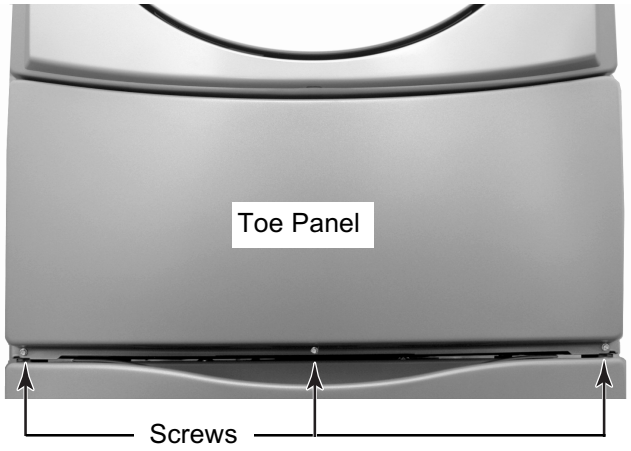
Electrical Shock Hazard

Disconnect power before servicing.

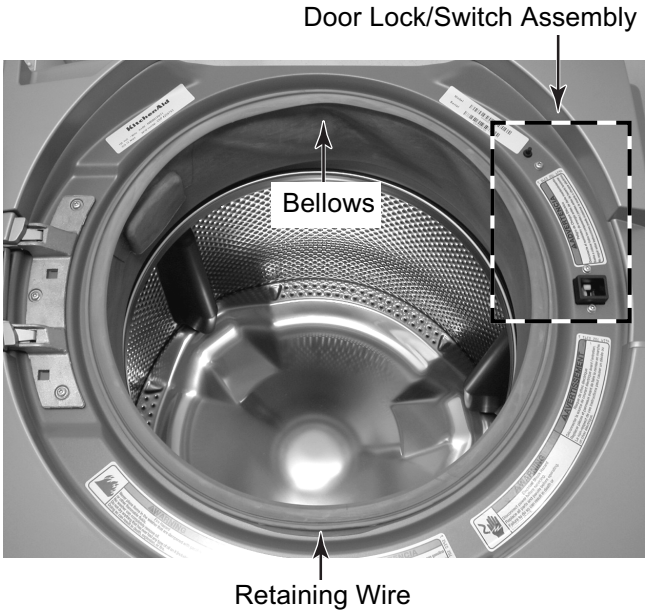
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

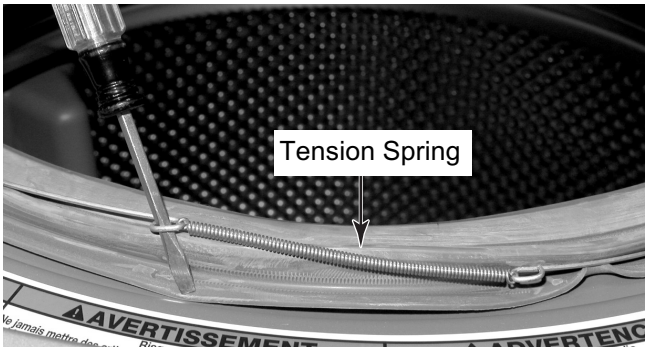
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the console (see page 4-2 for the procedures).
4. Remove the three T-20 hex-head torx screws from the toe panel and remove the panel.



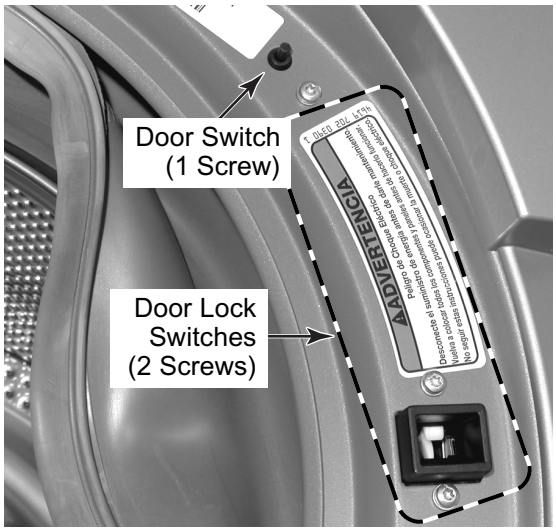
5. Open the washer door.



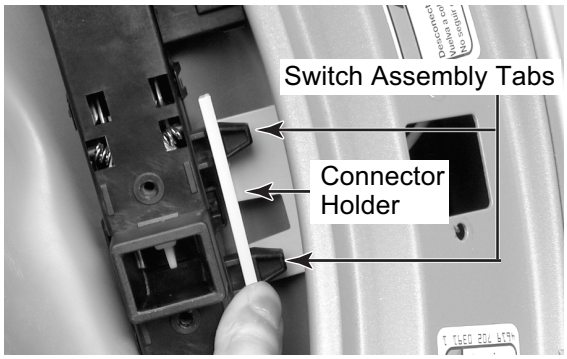
6. Starting at the bottom, use a small screwdriver, and pry the retaining wire from around the front of the bellows. **NOTE:** There is a tension spring at the bottom of the wire that can be separated to remove the wire.



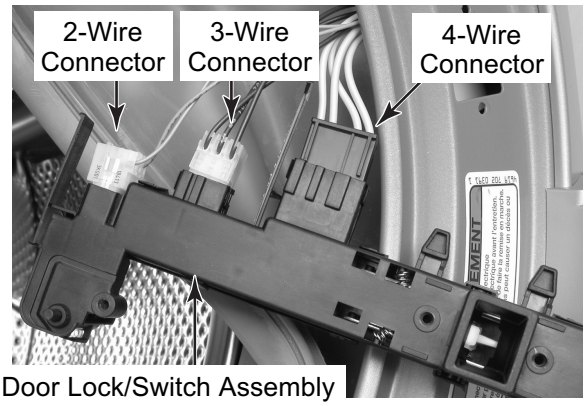
7. **To remove the door lock/switch assembly:**
   a) Remove the bellows retaining wire (refer to steps 5 and 6 for the procedure).
   b) Pull the bellows out and remove the three T-20 torx screws and flat washers from the door lock/switch assembly.



   c) Push the switch assembly out of the front panel and then slide the assembly tabs from the connector holder.



   d) Disconnect the three wire connectors from the switch terminals and remove the assembly.

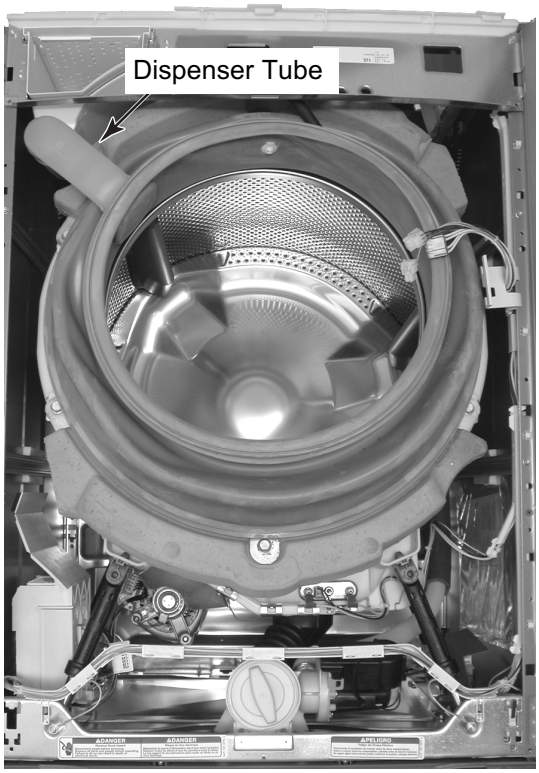


8. **To remove the front panel and bellows:**
   a) Remove the top cover and the console (see page 4-2 for the procedures).
   b) Remove the bellows retaining wire (refer to steps 5 and 6 for the procedure).
   c) Pull the bellows off the lip of the front panel.
   d) Remove the door lock/switch assembly (see step 7).

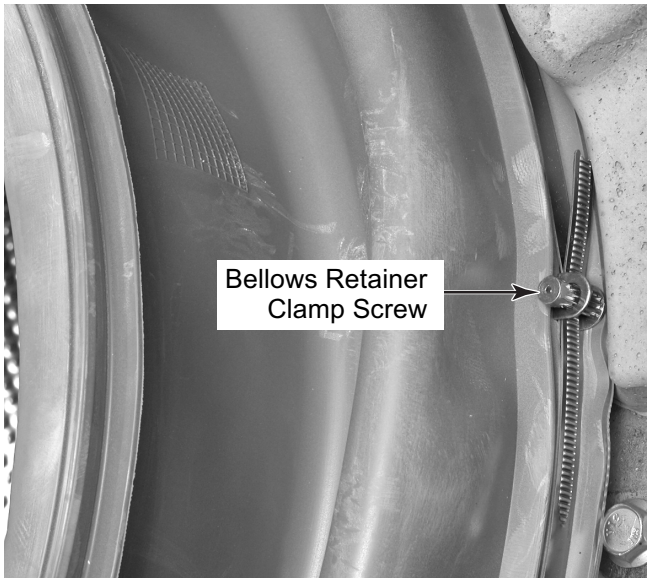
   e) Close the washer door.
   f) Remove the four T-20 hex-head torx screws from the top and bottom of the front panel and remove the panel from the unit.

Continued on the next page.

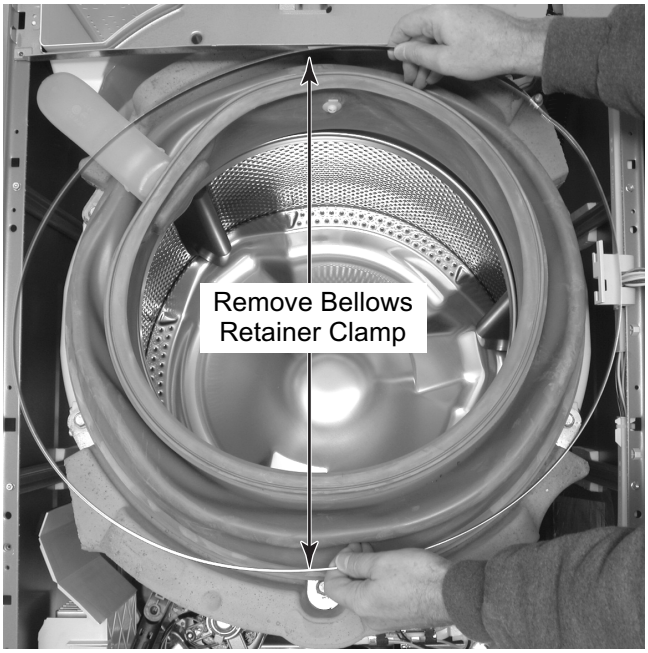
g) Remove the end of the dispenser tube from the bellows.



h) Use a 7mm socket, and turn the bellows retainer clamp screw counter-clockwise until the clamp is loose enough to remove from around the bellows.



i) Remove the bellows retainer clamp.



j) Remove the bellows from the front of the tub.

REMOVING THE FLOWMETER

⚠WARNING

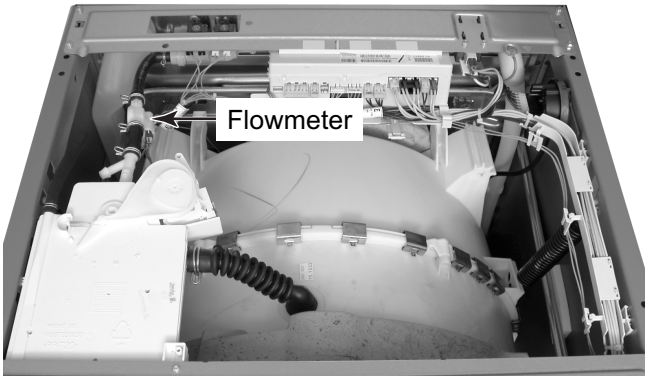
Electrical Shock Hazard

Disconnect power before servicing.

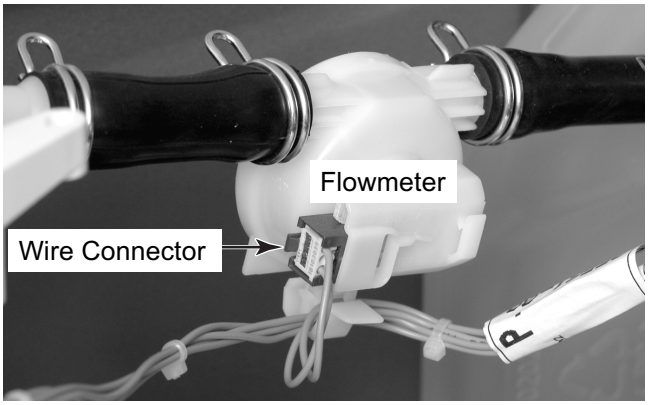
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the console (see page 4-2 for the procedures).



4. Loosen the two clamps and remove the two hoses from the ends of the flowmeter.
5. Disconnect the wire connector from the flowmeter.



REMOVING THE DETERGENT DISPENSER MOTOR & ASSEMBLY

⚠WARNING

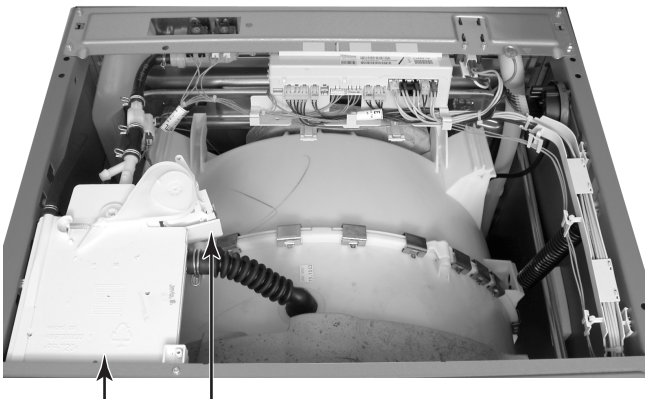
Electrical Shock Hazard

Disconnect power before servicing.

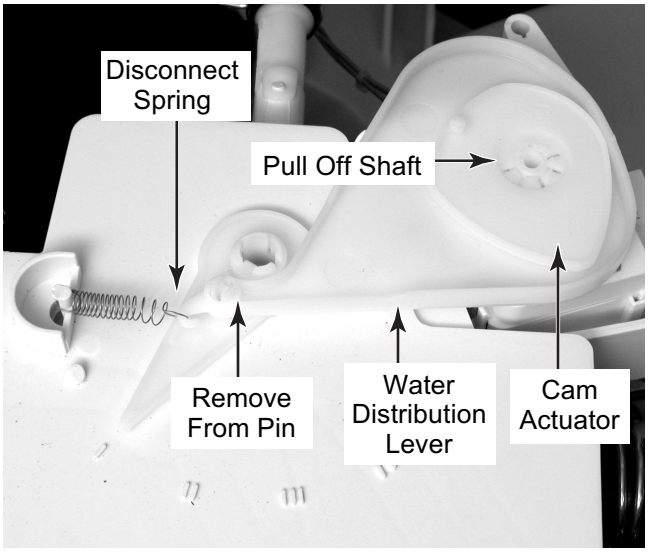
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

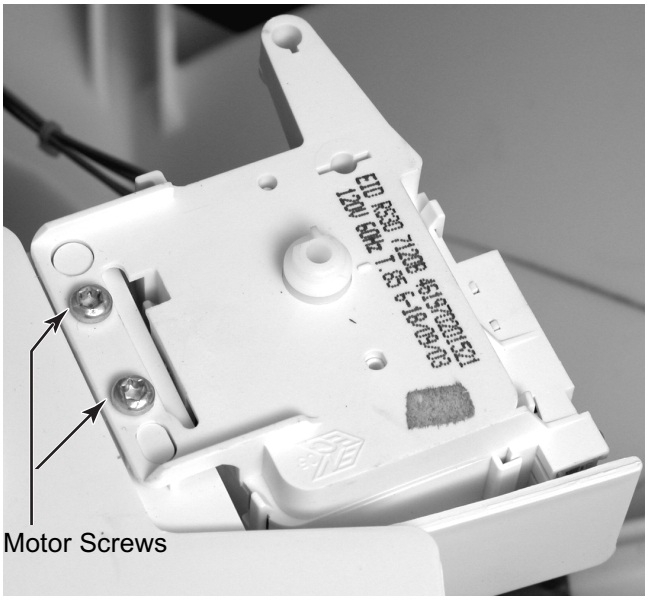
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the console (see page 4-2 for the procedures).



4. **To remove the detergent dispenser motor:**
   a) Unhook the spring from the end of the water distribution lever.
   b) Carefully pull the cam actuator and the water distribution lever off the motor shaft, then pull the water distribution lever off the lever connection pin.

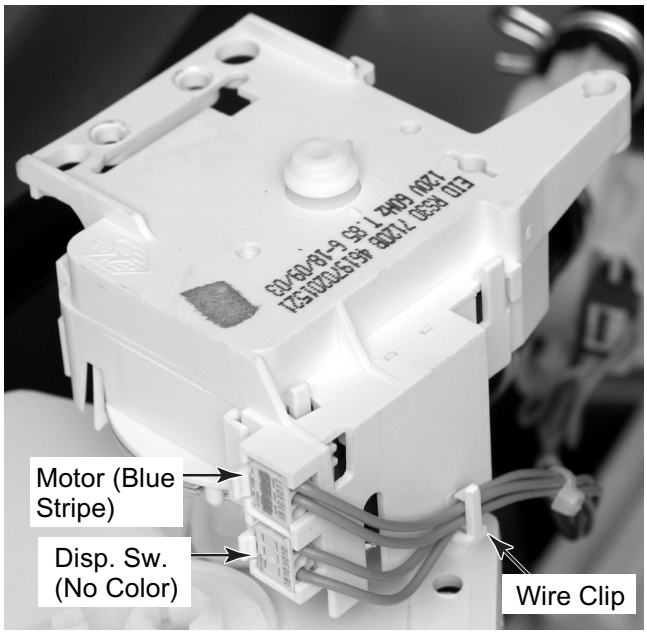


   c) Remove the two motor screws and remove the motor from the detergent dispenser.



d) Remove the motor and switch wires from the wire clip.

e) Disconnect the two wire connectors from the motor terminals. **NOTE:** The connector with the blue stripe (motor connector) is installed above the connector with no color indicator (dispenser switch connector).



5. **To remove the detergent dispenser assembly:**

   a) Remove the front panel from the washer (see pages 4-4 and 4-5 for the procedure).

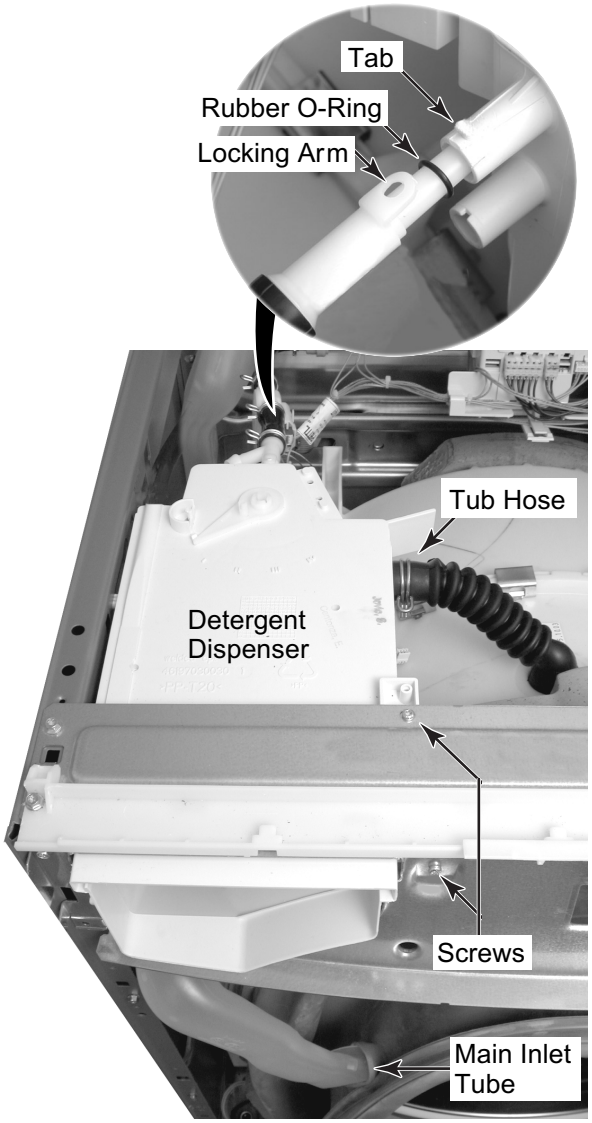
   b) Remove the detergent dispenser motor (see step 4).

   c) Use a small screwdriver and raise the locking arm so that it clears the tab. Pull the inlet hose connector and rubber o-ring out of the detergent dispenser.

   d) Loosen the clamp and pull the tub hose from the detergent dispenser.

   e) Remove the main inlet tube from the bellows.

   f) Remove the two screws from the detergent dispenser and remove the dispenser from the washer.



REMOVING THE INLET VALVES

⚠WARNING

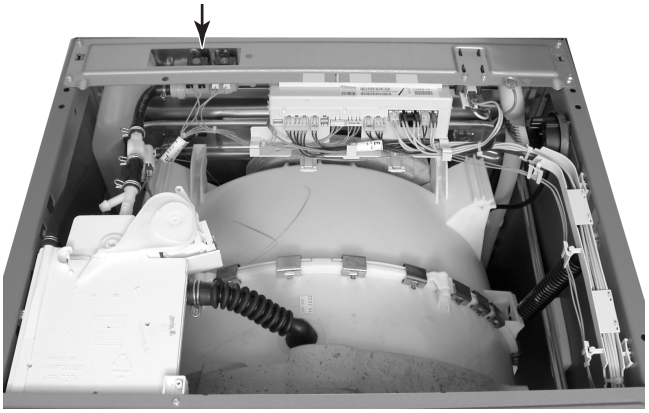
Electrical Shock Hazard

Disconnect power before servicing.

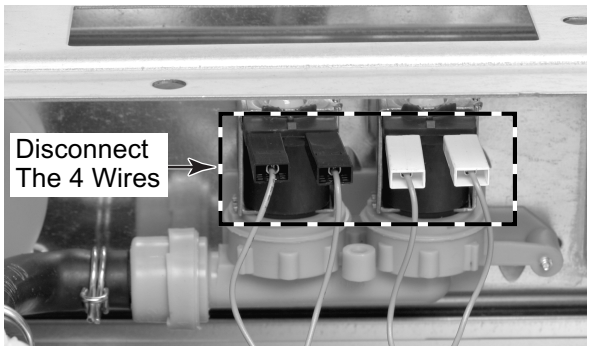
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

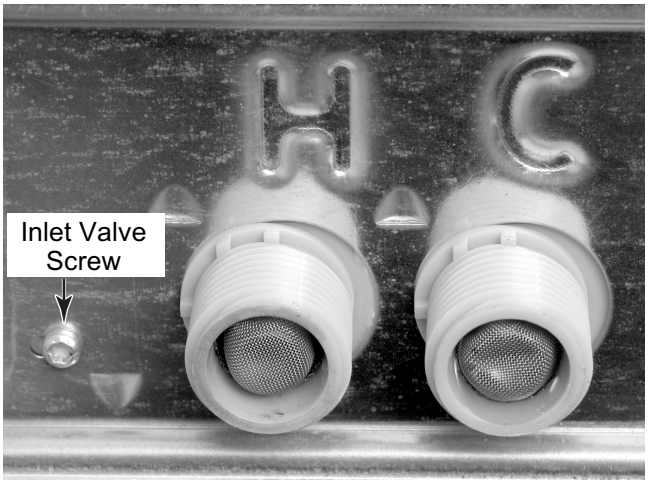
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the console (see page 4-2 for the procedures).



4. Disconnect the four wire connectors from the inlet valve terminals.

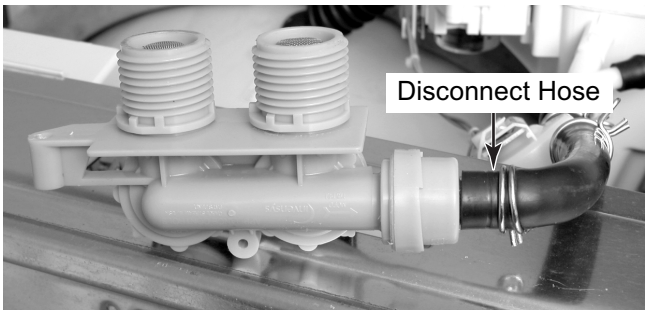


5. From behind the washer, remove the inlet valve screw, then slide the valves to the right and unhook them from the panel, and remove them.



Rear Of Washer

6. Loosen the clamp and disconnect the hose from the water valves.



REMOVING THE CENTRAL CONTROL UNIT

⚠WARNING

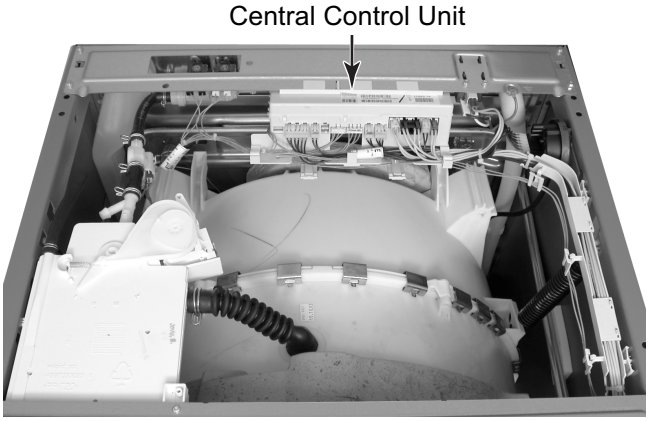
Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

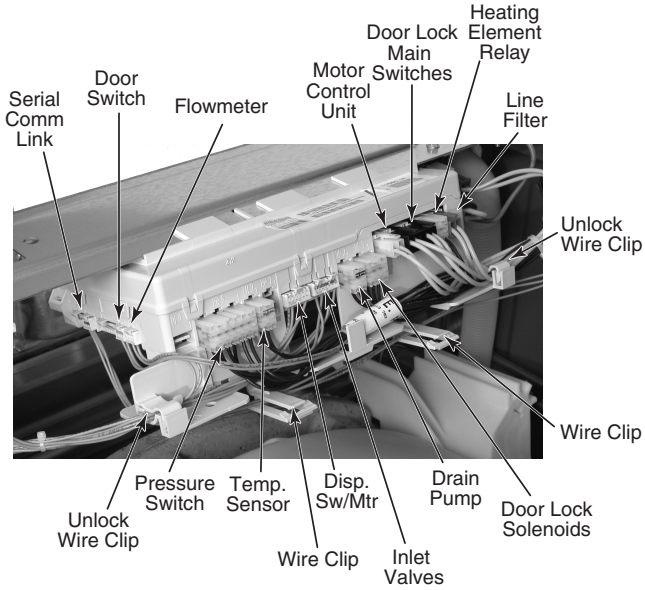
Failure to do so can result in death or electrical shock.

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the console (see page 4-2 for the procedures).

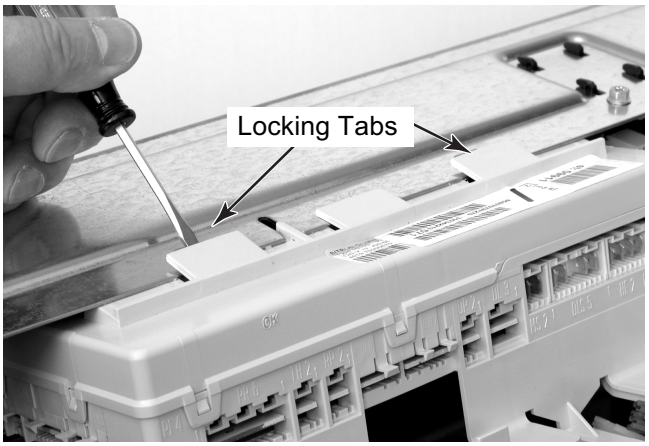


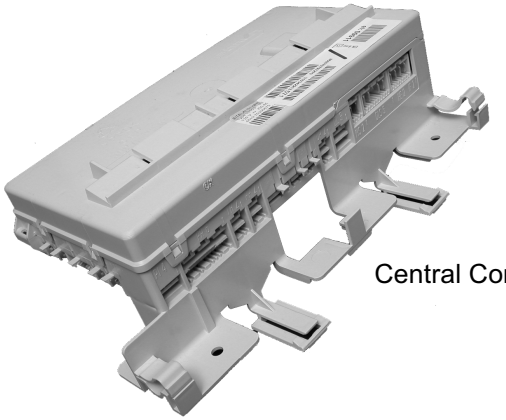
4. Remove all of the wire connectors from the central control unit (see the photo at the top of the right column). **NOTE:** Each connector has a locking arm or locking tabs that you must release to remove the connector from the unit.

5. Unlock the two wire clips and remove the wires from each of the clips (4 total).



6. Pry up on the two end locking tabs with a small screwdriver and unhook the central control unit from the washer.





REMOVING THE INTERFERENCE FILTER

⚠WARNING

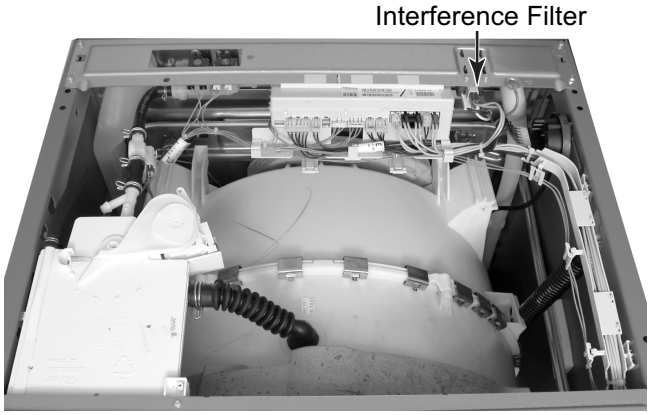
Electrical Shock Hazard

Disconnect power before servicing.

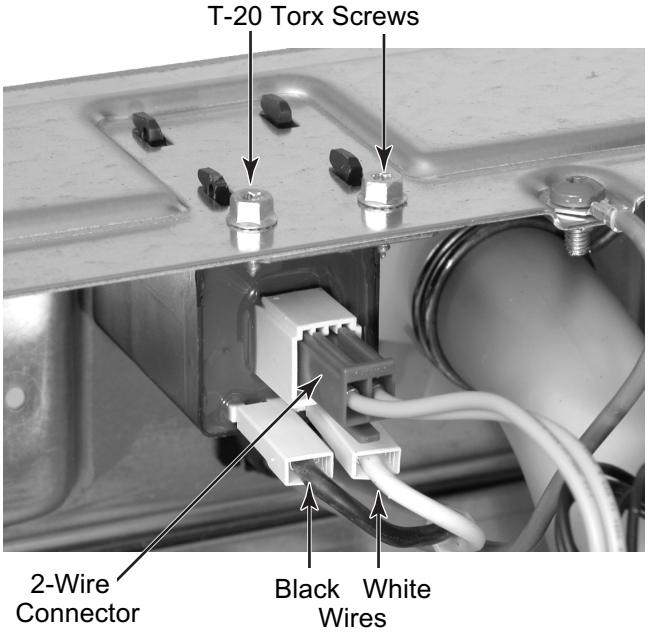
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the console (see page 4-2 for the procedures).



4. Disconnect the three connectors from the interference filter terminals. **NOTE:** The green 2-wire connector has a locking arm at the bottom that you must press to release the connector.
5. Remove the two T-20 hex-head torx screws from the interference filter and remove the filter from the washer.



REMOVING THE PRESSURE SWITCH

⚠WARNING

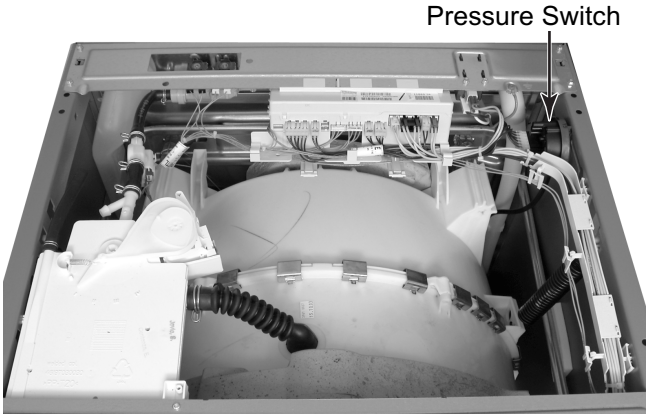
Electrical Shock Hazard

Disconnect power before servicing.

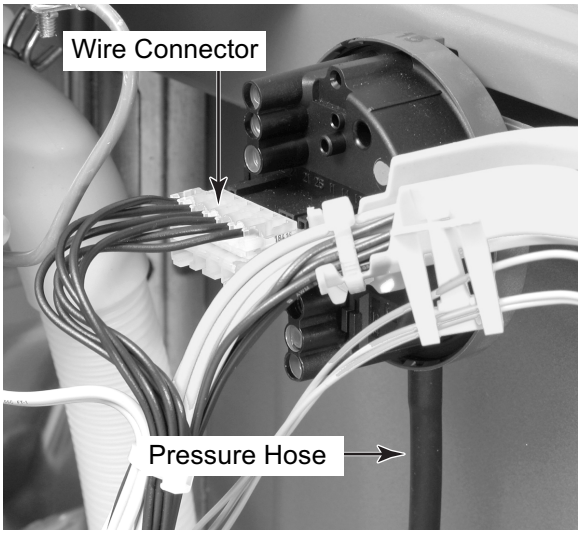
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

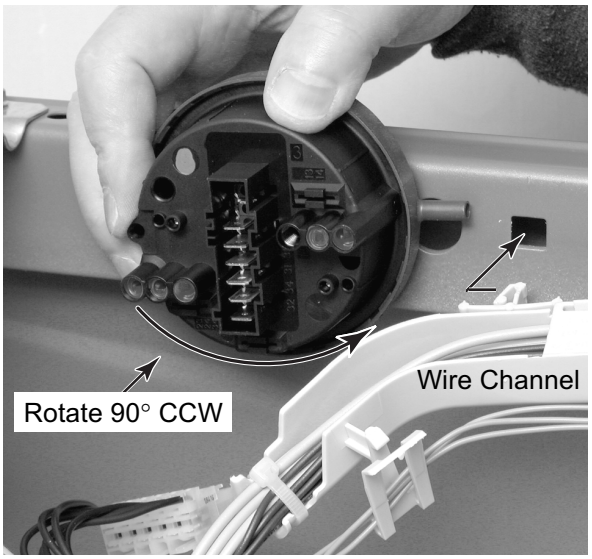
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the top cover and the console (see page 4-2 for the procedures).



4. Pull the pressure hose off the pressure switch inlet.
5. Press on the two locking arms at the bottom of the wire connector, and pull the connector off the pressure switch terminals.



6. Pry the standoff on the wire channel out of its chassis mounting hole.
7. Turn the pressure switch 90° counter-clockwise so that the square locking tab is aligned with the chassis cutout. Pull the tab out of the cutout, and remove the switch.



REMOVING THE MOTOR CONTROLLER

⚠WARNING

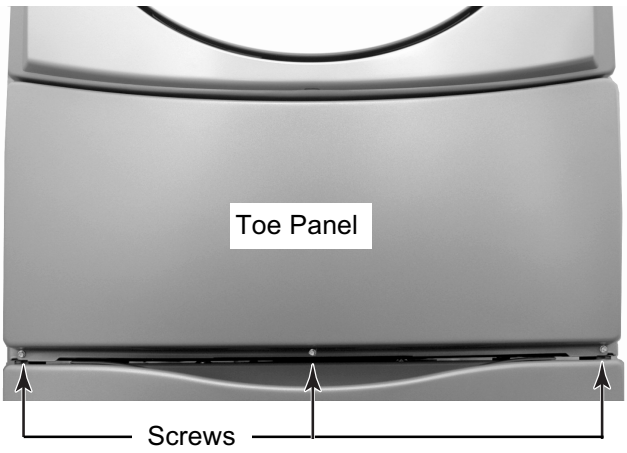
Electrical Shock Hazard

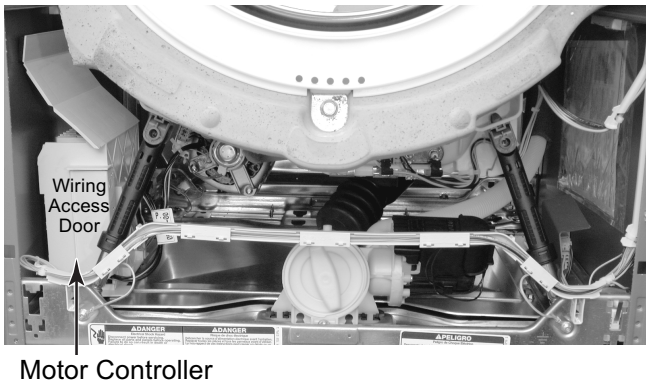
Disconnect power before servicing.

Replace all parts and panels before operating.

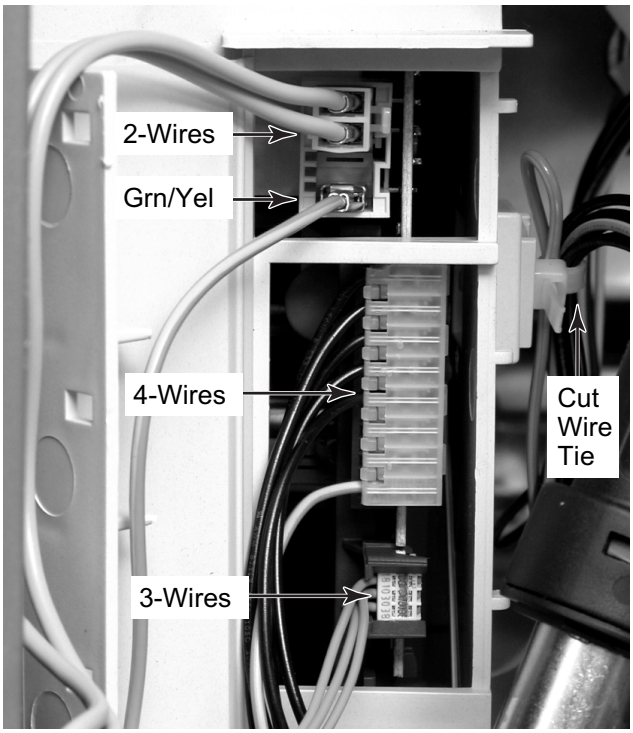
Failure to do so can result in death or electrical shock.

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the three T-20 hex-head torx screws from the toe panel and remove the panel.

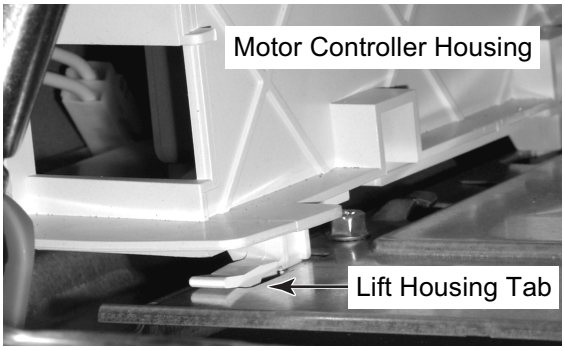




4. Open the wiring access door on the front of the motor controller housing.
5. Disconnect the four wire connectors from the motor controller. **NOTE:** Each connector has a locking arm or locking tabs that you must release to remove the connector from the unit.
6. Cut the wire tie and pull the cut tie out of the slot in the standoff. **NOTE:** Be careful not to cut any of the wires in the tie.



7. Lift the locking tab on the motor controller housing, and slide the housing tabs forward as far as they will go.
8. Lift the motor controller housing so the tabs are out of their chassis slots, and remove the housing from the washer.



REASSEMBLY NOTE: After reinstalling the motor controller housing, slide a wire tie through the slot in the standoff and secure the wires to the standoff.

REMOVING THE TEMPERATURE SENSOR & THE HEATING ELEMENT

⚠WARNING

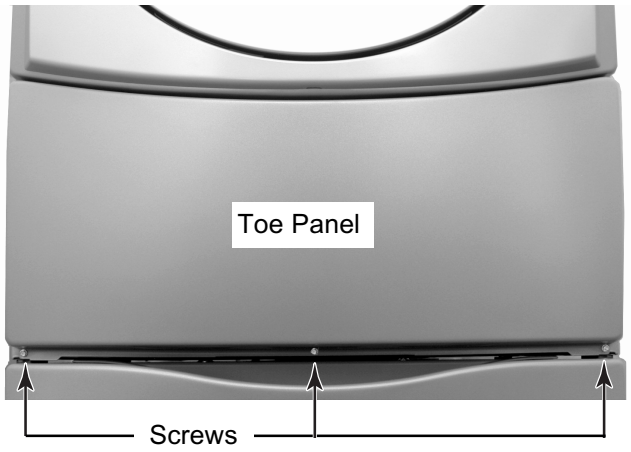
Electrical Shock Hazard

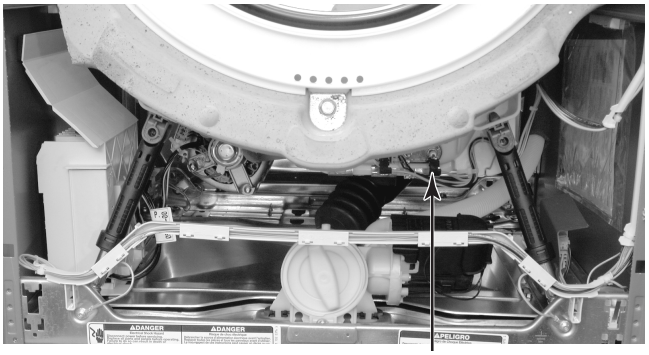
Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

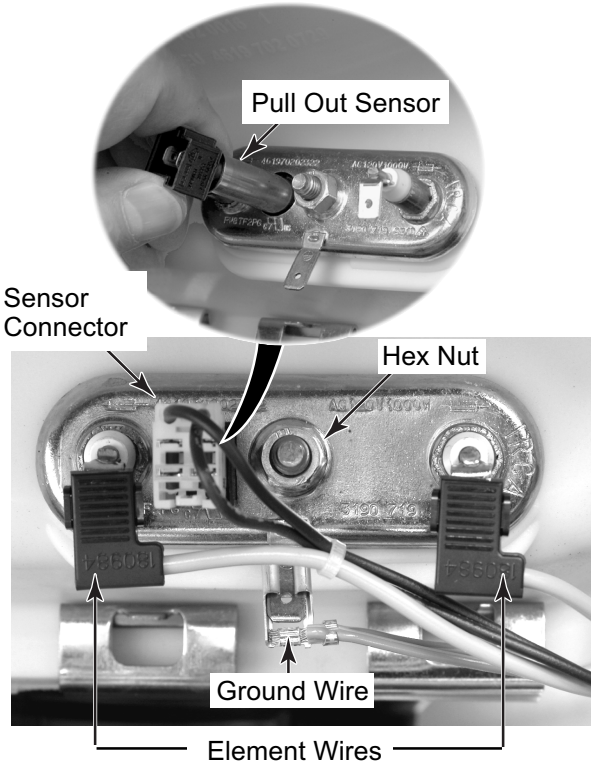
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the three T-20 hex-head torx screws from the toe panel and remove the panel.



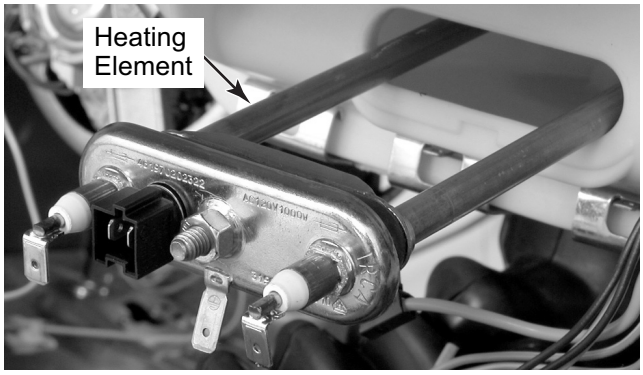


Heating Element & Temperature Sensor

4. Use a 13/32″ (10 mm) socket and **loosen** the hex nut on the heating element bracket.
5. **To remove the temperature sensor:**
   a) Disconnect the sensor connector.
   b) Pull the sensor out of the heating element bracket hole.



6. **To remove the heating element:**
   a) Remove the temperature sensor (see step 5).
   b) Disconnect the element wires and the green ground wire from the terminals.
   c) Pull the heating element and temperature sensor out of the tub.



REMOVING THE HEATING ELEMENT RELAY

⚠WARNING

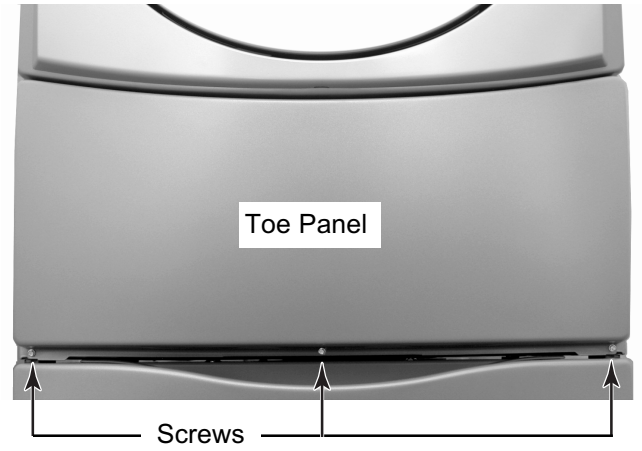
Electrical Shock Hazard

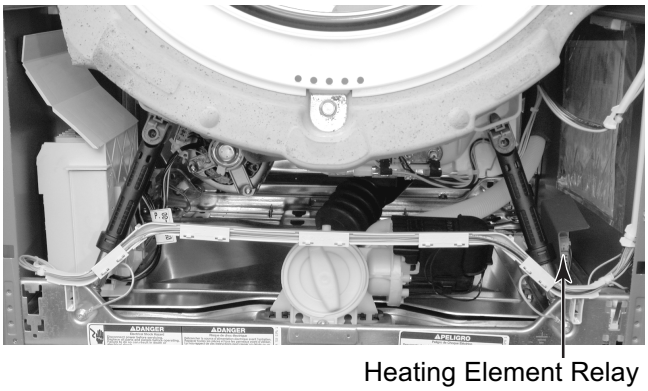
Disconnect power before servicing.

Replace all parts and panels before operating.

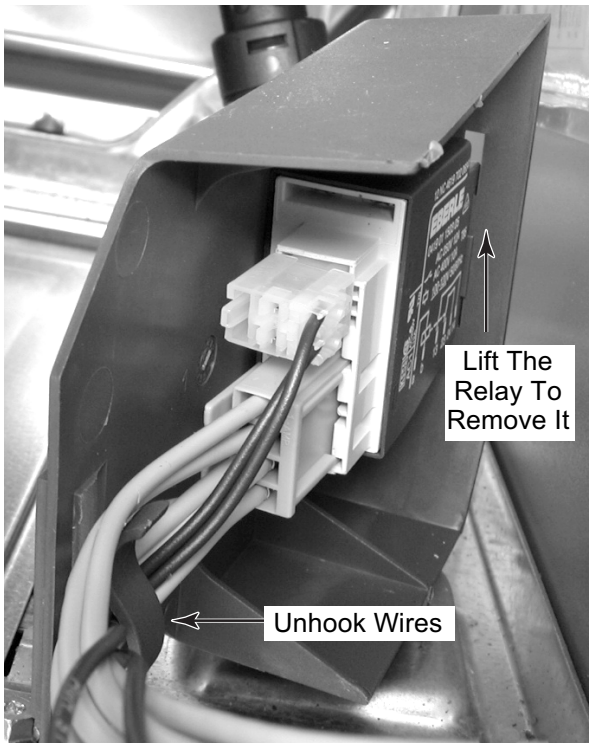
Failure to do so can result in death or electrical shock.

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the three T-20 hex-head torx screws from the toe panel and remove the panel.

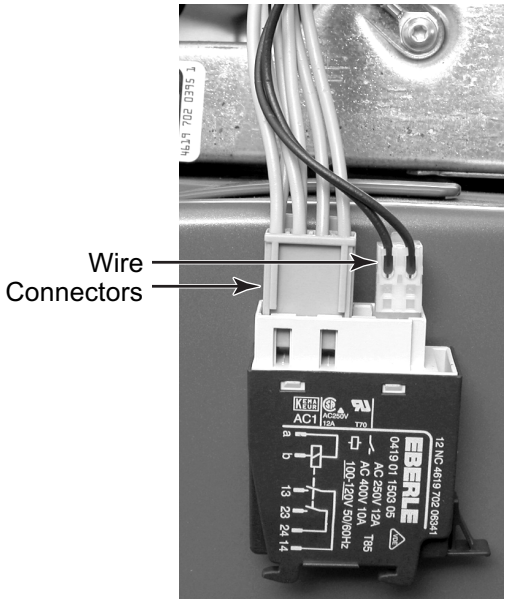




4. Rotate the element relay holder so you can access the relay board.
5. Unhook the wires from the holder, then lift the relay, and unhook it from the slots in the back of the holder.



6. Press the locking arms and disconnect the wire connectors from the relay.



REMOVING THE DRAIN PUMP ASSEMBLY

⚠WARNING

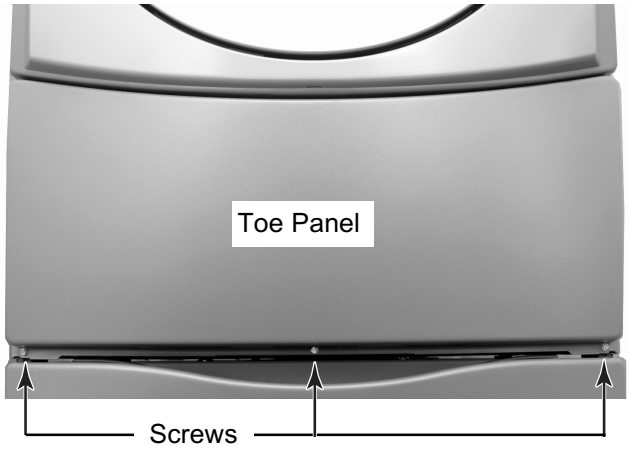
Electrical Shock Hazard

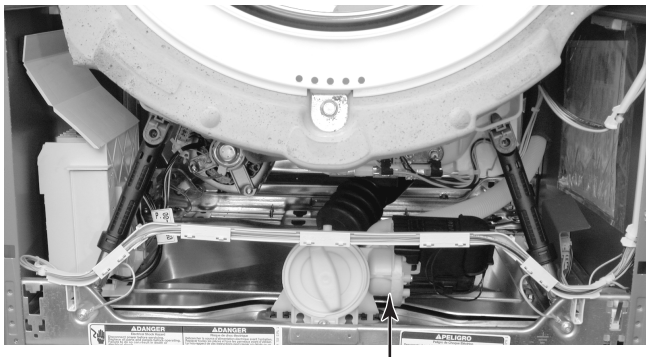
Disconnect power before servicing.

Replace all parts and panels before operating.

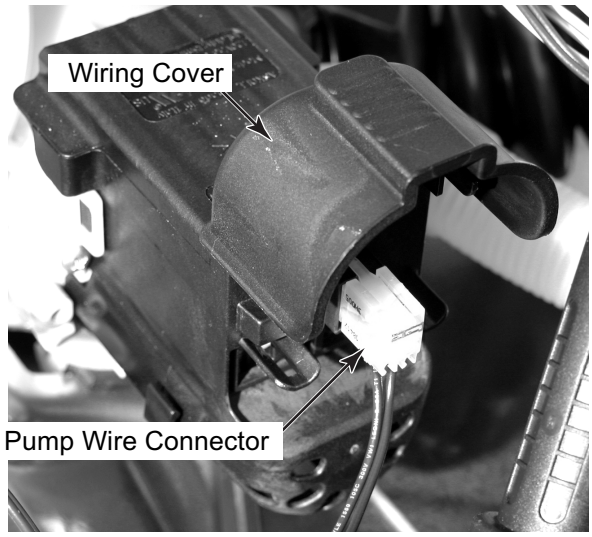
Failure to do so can result in death or electrical shock.

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the three T-20 hex-head torx screws from the toe panel and remove the panel.

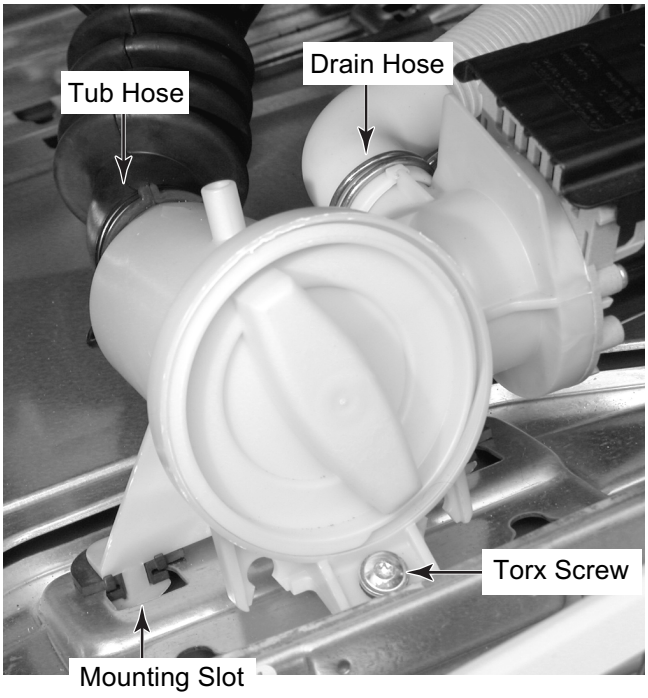




4. Raise the drain pump wiring cover and disconnect the wire connector.



5. Loosen the clamps, and disconnect the drain and tub hoses from the drain pump.
6. Remove the T-20 torx screw from the drain pump.
7. Slide the drain pump forward in its mounting slots and lift it out of the washer. Do not remove the rubber washers from the slots.



REMOVING THE AIRTRAP

⚠WARNING

Electrical Shock Hazard

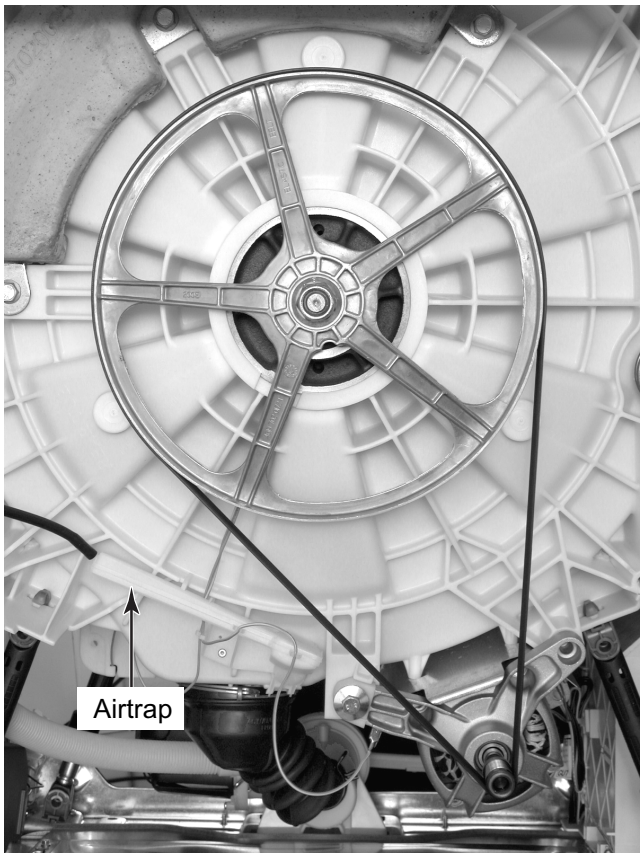
Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Pull the washer away from the wall so that you can access the rear panel.
4. Remove the twelve T-20 hex-head torx screws from the rear panel and remove the panel from the washer.

Rear Panel Screw (1 of 12)



5. Pull the pressure tube off the airtrap fitting.
6. Remove the T-10 torx screws from the airtrap.
7. Press the locking arm to unlock the airtrap and pull it back and off the tub. **NOTE:** Replace the rubber o-ring if it is cracked or worn.

REMOVING AN INTERLOCK SWITCH

⚠WARNING

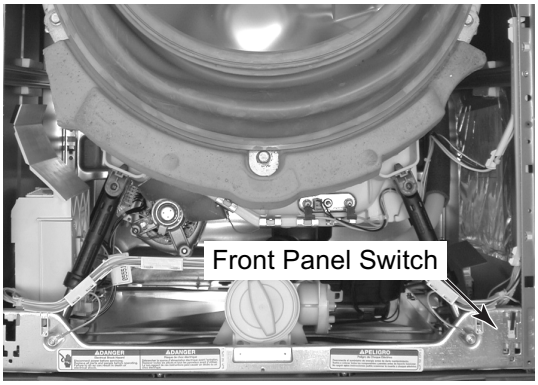
Electrical Shock Hazard

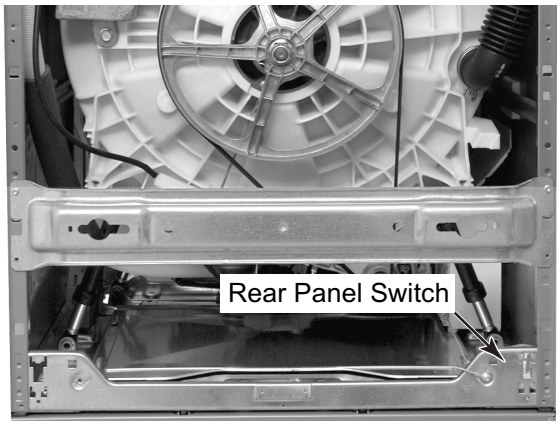
Disconnect power before servicing.

Replace all parts and panels before operating.

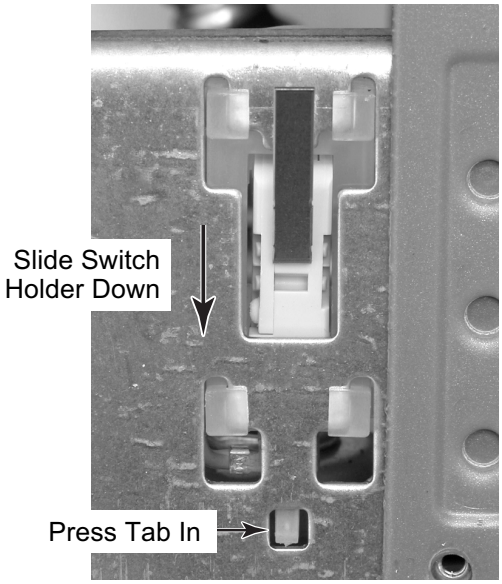
Failure to do so can result in death or electrical shock.

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Depending on the interlock switch you are servicing, remove the front panel (see pages 4-4 and 4-5 for the procedure), or the rear panel (see page 4-19 for the procedure).

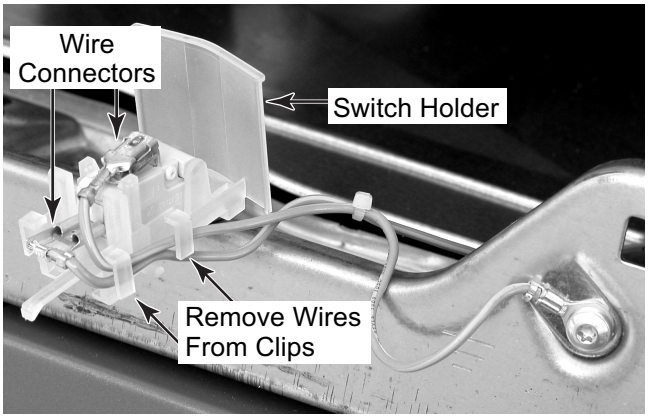




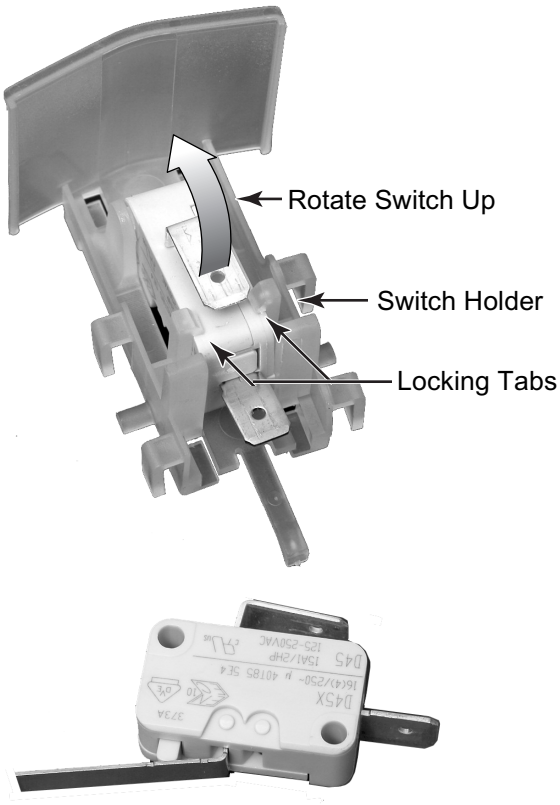
4. Press in on the locking tab. Slide the switch holder down in the chassis slots, and remove it from the chassis.



5. Remove the wires from the switch holder clip, and disconnect the wire connectors from the switch terminals. **NOTE:** The top connector has a locking tab on it.



6. Push out on the locking tabs of the switch holder, rotate the switch up, and remove it from the holder.



REMOVING THE DRIVE MOTOR

⚠WARNING

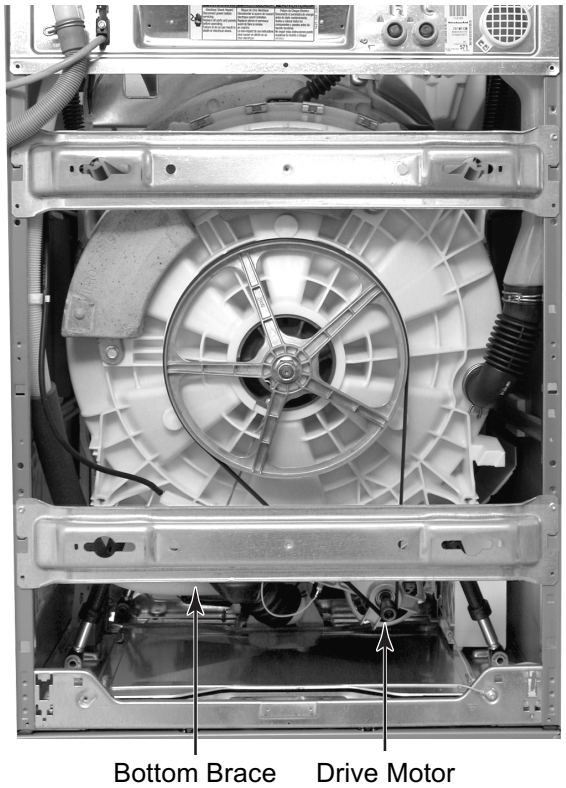
Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

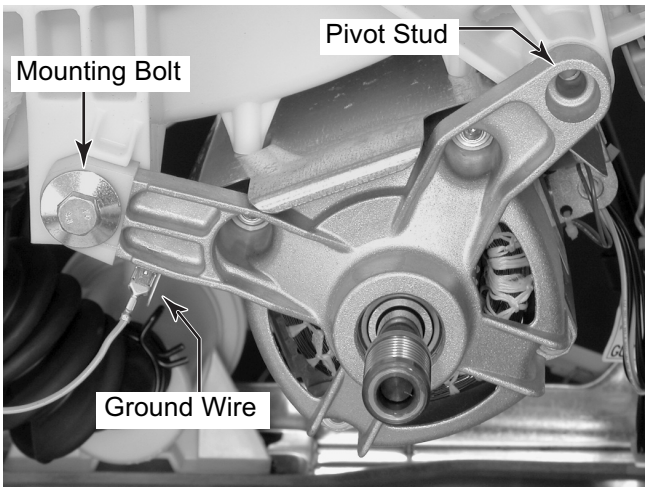
Failure to do so can result in death or electrical shock.

1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Pull the washer away from the wall so that you can access the rear panel.
4. Remove the rear panel from the washer (see page 4-19 for the procedure).
5. Remove the two T-20 hex-head torx screws from the bottom brace and remove the brace.

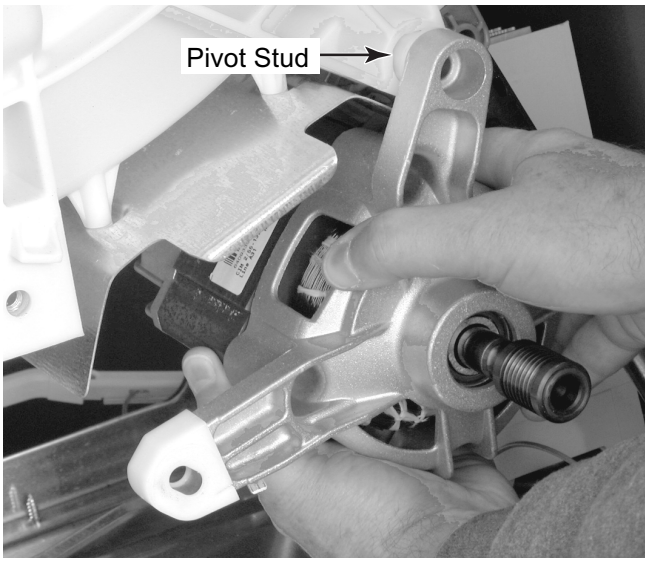


6. Remove the drive belt from the end of the drive motor shaft and then remove the belt from the drive pulley.

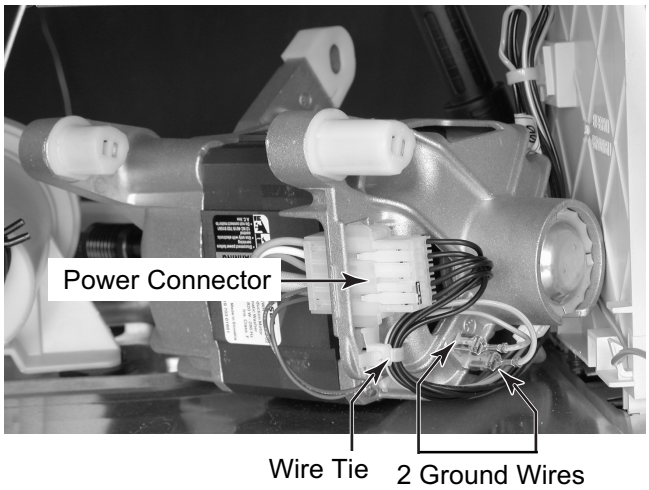
7. Disconnect the green ground wire from the drive motor frame.
8. Remove the 1/2″ hex-washer-head mounting bolt from the drive motor.



9. Pull the drive motor toward you and remove the pivot studs from the tub holes; then turn the motor around so that you can access the motor wires.



10. Cut the drive motor wire tie from around the motor wires and pull the cut tie out of the slot in the standoff. **NOTE:** Be careful not to cut any of the wires in the tie.
11. Press the two locking arms down and disconnect the power connector from the motor.
12. Disconnect the two green ground wires from the motor terminals.



REMOVING THE TUB AND BASKET ASSEMBLY

⚠WARNING

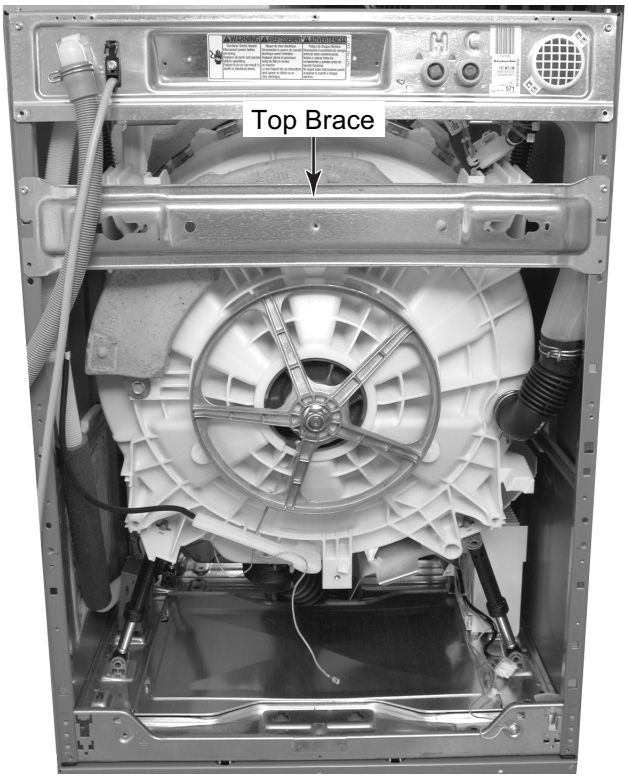
Electrical Shock Hazard

Disconnect power before servicing.

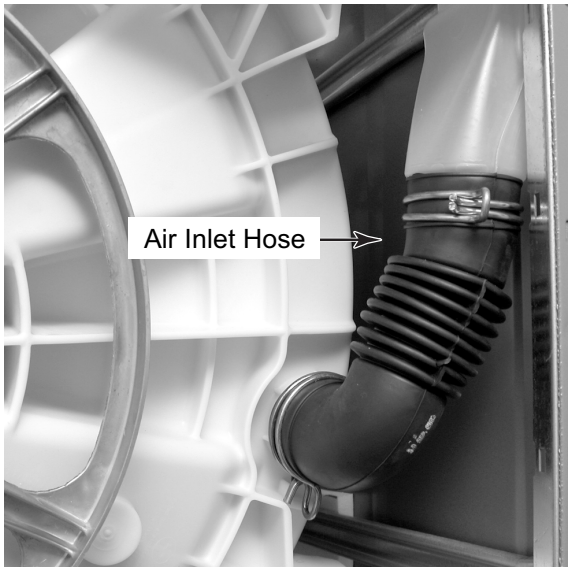
Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

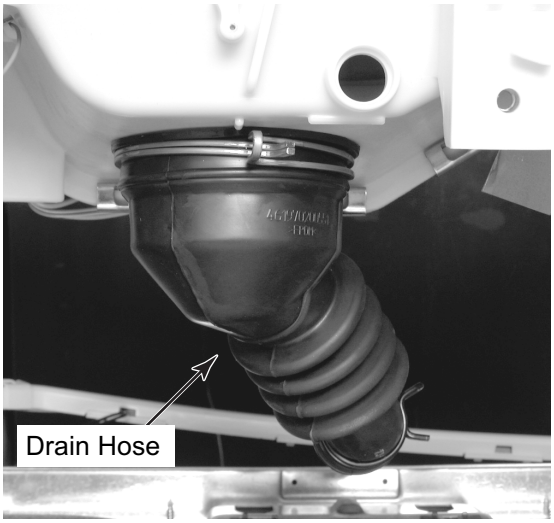
1. Unplug washer or disconnect power.
2. Turn off the water supply to the washer.
3. Remove the detergent dispenser assembly (see page 4-8 for the procedure).
4. Remove the heating element & temperature sensor (see page 4-16 for the procedures).
5. Remove the drain pump assembly (see page 4-18 for the procedure).
6. Remove the airtrap from the washer (see page 4-19 for the procedure).
7. Remove the drive motor and belt (see page 4-22 for the procedure).
8. Remove the T-20 hex-head torx screws from the top (and bottom, if not already done in step 7) braces and remove both braces from the rear of the washer.



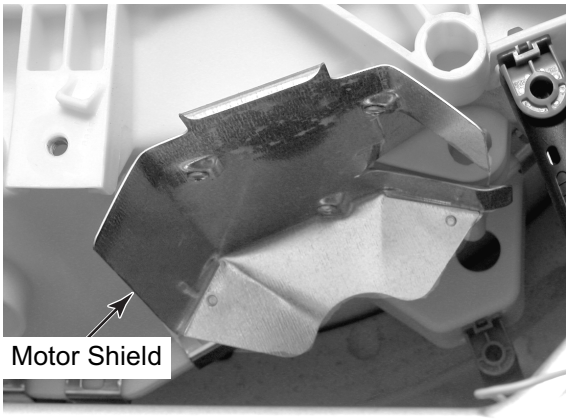
9. Loosen the clamp and pull the end of the air inlet hose from the tub.



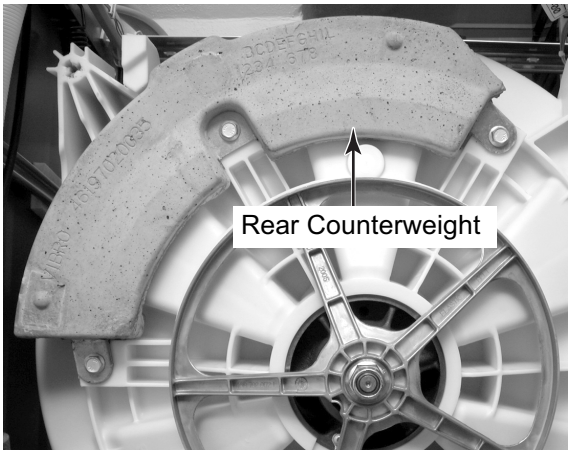
10. Loosen the clamp and pull the end of the drain hose from the tub.



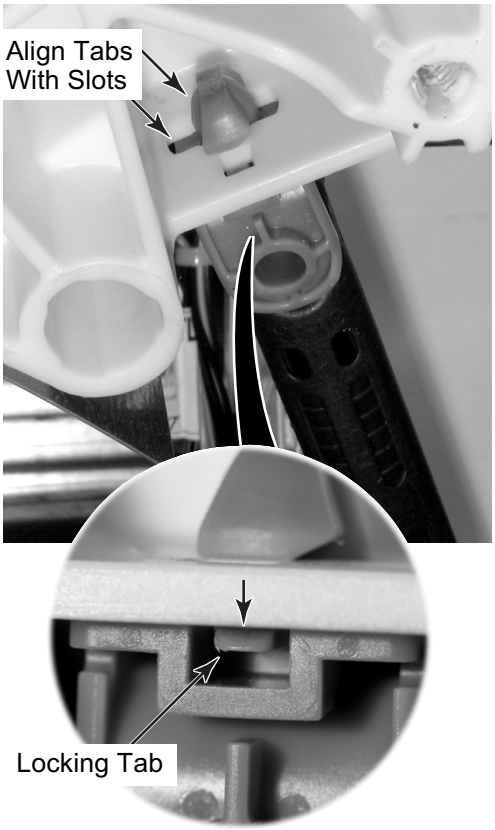
11. Remove the three T-20 torx screws from the drive motor shield and remove the shield from the bottom of the tub.



12. Remove the three 1/2″ hex-head bolts from the rear counterweight and remove the weight.



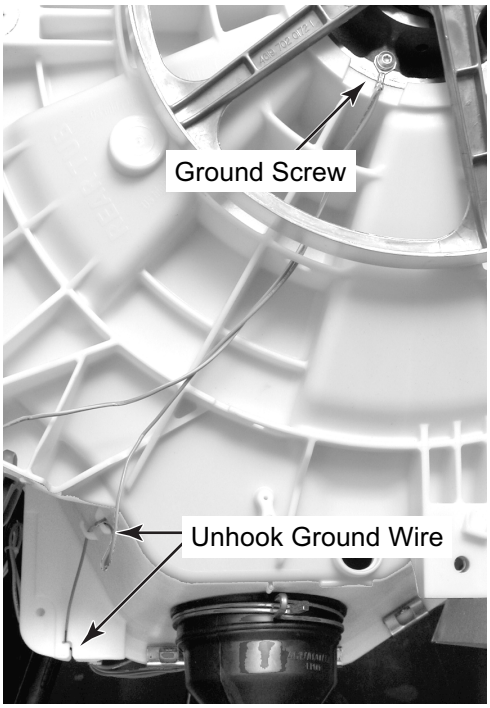
13. Remove the two rear shock absorbers from the tub. To remove a shock absorber:
    a) Pry the locking tab down with a small screwdriver.



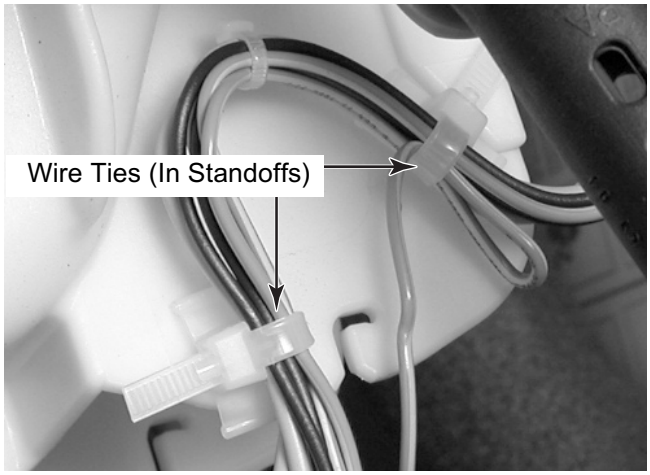
    b) Twist the top section so the tabs align with the slots in the tub.
    c) Lower the top of the strut down through the slot, and rotate the shock absorber against the floor of the cabinet.

Continued on the next page.

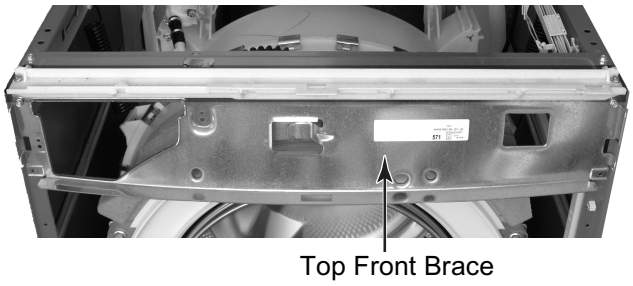
14. Remove the screw from the green ground wire eyelet and remove the wires from the clips in the tub.



15. Cut the two wire ties at the front of the tub, and pull the cut ties out of the standoffs. **NOTE:** Be careful not to cut the wires inside the wire ties.



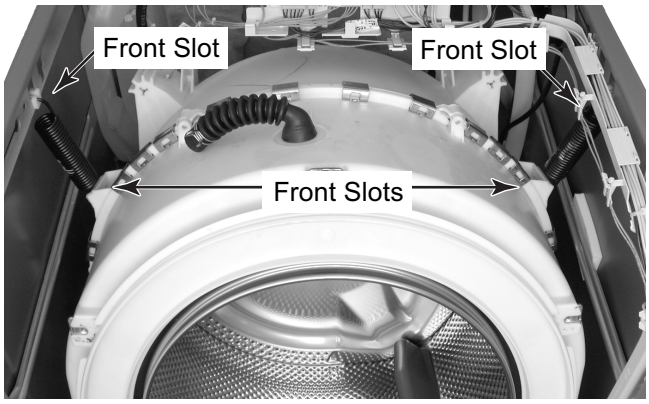
16. At the front of the washer, remove the six T-20 hex-head torx screws (total) from the top front brace and remove the brace from the washer.



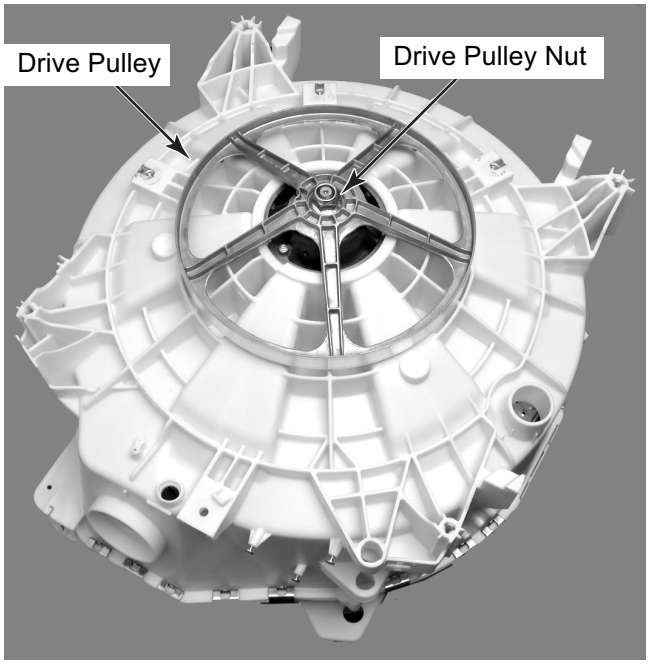
IMPORTANT NOTE: When you remove the bottom front counterweight in the following step, be sure to support it with one hand while you remove the screws with the other hand; otherwise, the weight will fall, and could cause an injury or damage the floor covering.

17. While supporting the bottom front counterweight with one hand, remove the three 1/2″ hex-head bolts with the other hand, and remove the weight.
18. Remove the three 1/2″ hex-head bolts from the top front counterweight, and remove the weight.

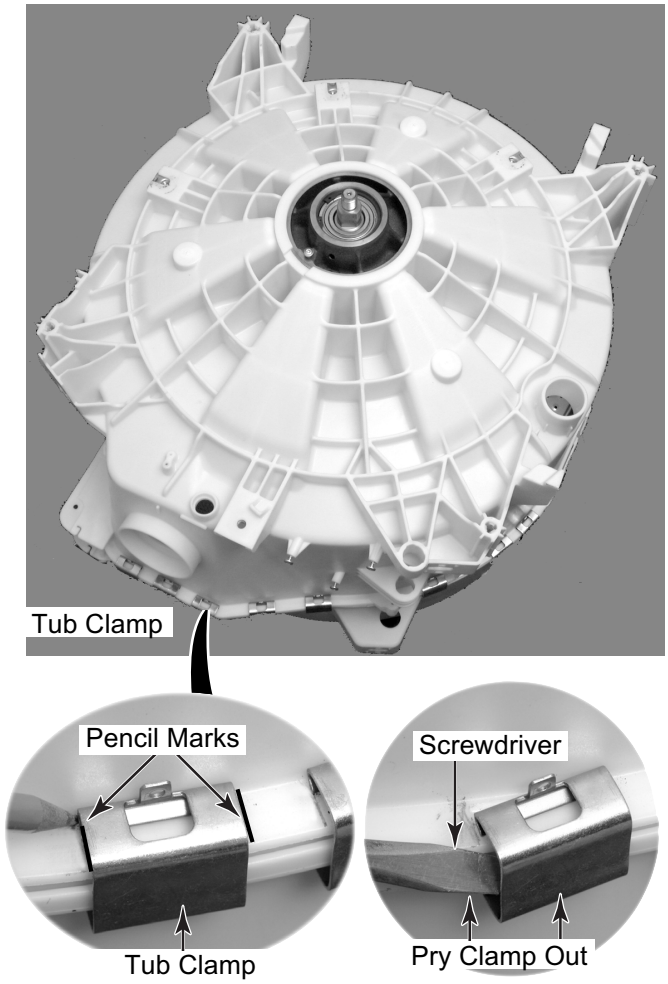
19. Using the procedure in step 13, remove the two front shock absorbers from the tub.
20. Lift the tub and basket assembly and unhook the two suspension springs, then remove the assembly from the washer, and place it front-down on a padded surface so that the back pulley faces up. **NOTE:** The suspension springs are installed in the front slots of the cabinet, as well as in the tub. Do not use the back slots; they are used with other models.



21. Remove the 15/16″ hex-washer nut from the drive pulley and remove the pulley from the basket shaft.

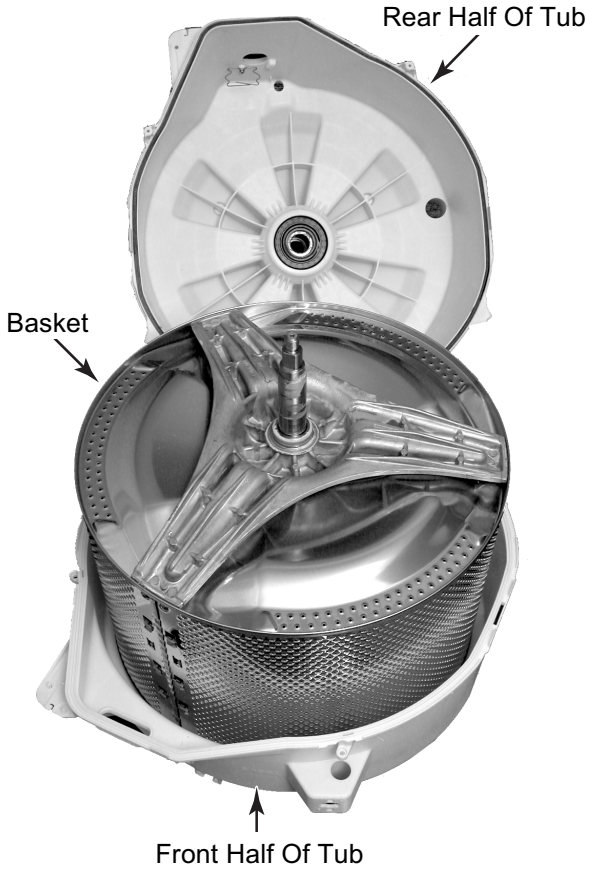


22. Mark the edges of the 23 tub clamps with a pencil so that you can reinstall the clamps in the same locations later.
23. Use a screwdriver blade, and pry off the 23 tub clamps.



Continued on the next page.

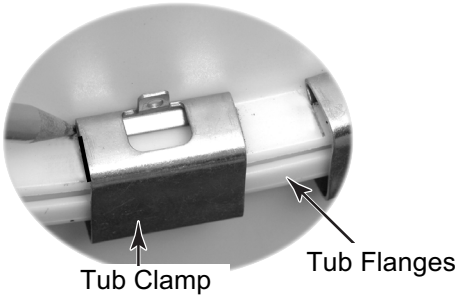
24. Lift the rear half of the tub off the front half.
25. Lift the basket from the front half of the tub.



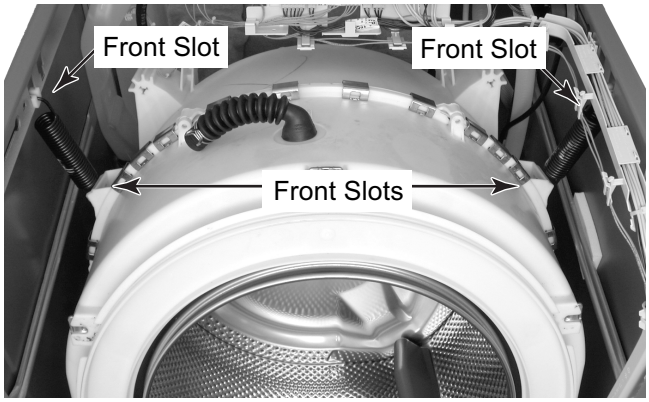
26. To replace the heater element wire holder, remove the T-20 torx screw.
27. To replace the tub gasket, pry the gasket out of the slot and remove it. **NOTE:** The basket hub is molded into the rear half of the tub. If it is worn and needs to be replaced, you will need to replace the rear half of the tub.

REASSEMBLY NOTES:

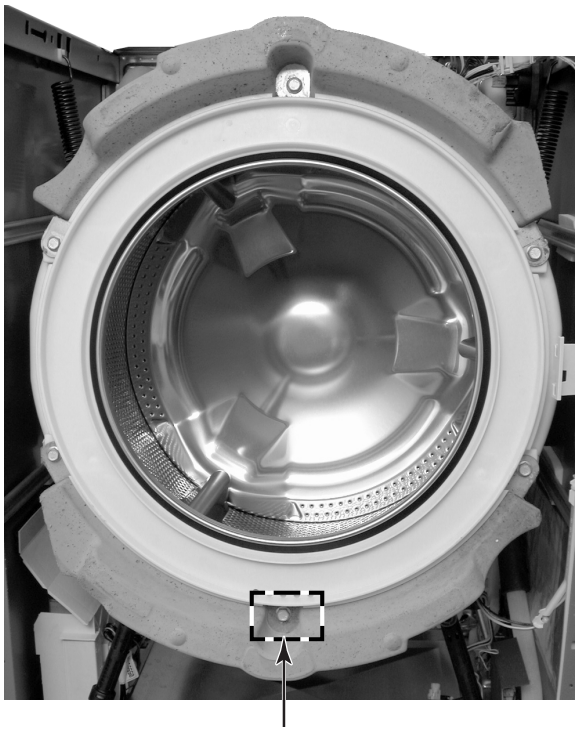
1. When reassembliing the tub, install the metal clips over the flanges of the two tub sections with a hammer.



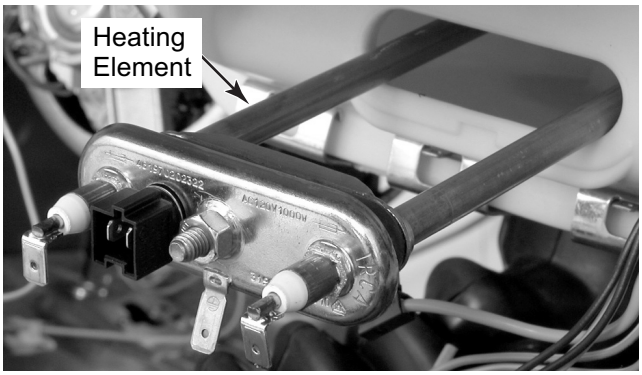
2. When reinstalling the tub assembly, hook the two suspension springs into the front holes of the tub and cabinet.



3. When reinstalling the bottom front counterweight, first tape the flat nut in place in the tub slot so it does not fall out.



4. When reinstalling the heating element in the tub, make sure that it is held in place by the wire holder (see the photo in step 27 on the previous page).



— NOTES —

COMPONENT TESTING

Before testing any of the components, perform the following checks:

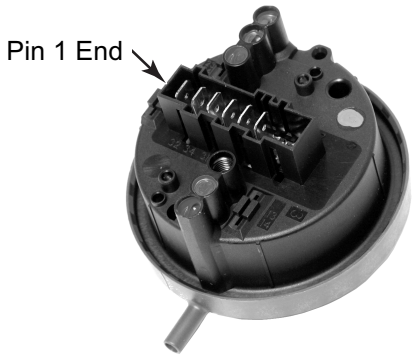
- Control failure can be the result of corrosion on connectors. Therefore, disconnecting and reconnecting wires will be necessary throughout test procedures.
- All tests/checks should be made with a VOM or DVM having a sensitivity of 20,000 ohms-per-volt DC, or greater.
- Check all connections before replacing components, looking for broken or loose wires, failed terminals, or wires not pressed into connectors far enough.
- Resistance checks must be made with power cord unplugged from outlet, and with wiring harness or connectors disconnected.
- Unless stated otherwise, make all resistance checks by disconnecting the component connector at the Central Control Unit (CCU).

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.
Replace all parts and panels before operating.
Failure to do so can result in death or electrical shock.

PRESSURE SWITCH



Refer to page 4-13 for the procedure for servicing the pressure switch.

1. Unplug washer or disconnect power.
2. Disconnect the hose and wire connector from the pressure switch.
3. Set the ohmmeter to the R X 1 scale.
4. Touch the ohmmeter test leads to the pressure switch connector pins shown below. The meter should indicate 0 Ω for each measurement.

Water Level Setting	Test Points
Empty	Pins 4 and 6
Suds Detect	Pins 1 and 2
L1	Pins 4 and 5
Overflow	Pins 3 and 4

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.
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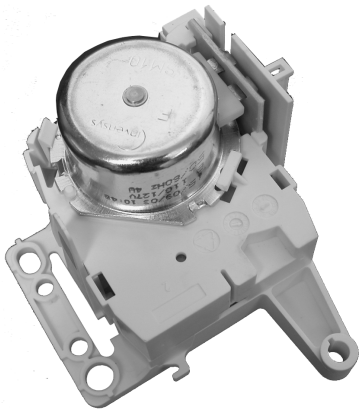
Failure to do so can result in death or electrical shock.

DETERGENT DISPENSER MOTOR & SWITCH

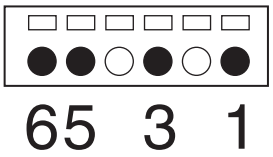


Refer to page 4-8 for the procedure for servicing the degergent dispenser motor.

1. Unplug washer or disconnect power.
2. Disconnect the detergent dispenser motor and switch connector from the CCU.
3. Set the ohmmeter to the R x 100 scale.
4. Touch the ohmmeter test leads to the indicated wire connector terminals. The meter should indicate as follows:

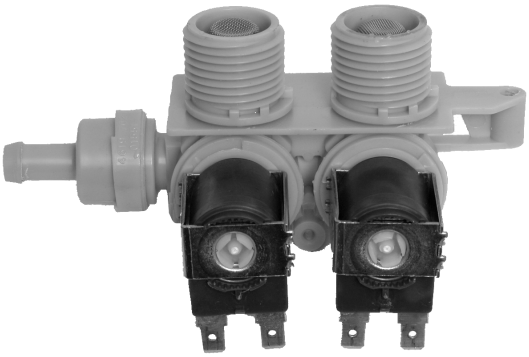
   Dispenser motor at pins 1 and 3 = 1400 to 1600 Ω.

   Dispenser switch at pins 5 and 6 = 0 Ω.



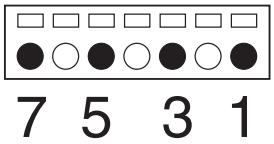
(Connector viewed From Wire End)

INLET VALVE SOLENOIDS



Refer to page 4-10 for the procedure for servicing the inlet valves.

1. Unplug washer or disconnect power.
2. Disconnect the inlet valve solenoid connector from the CCU.
3. Set the ohmmeter to the R x 100 scale.
4. Touch the ohmmeter test leads to the indicated wire connector terminals. The meter should indicate between 750 and 850 Ω.



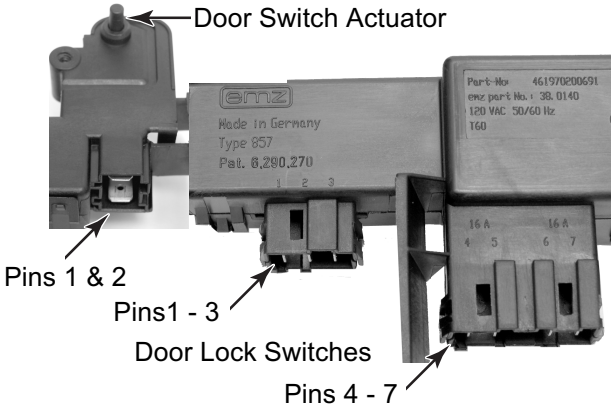
(Connector viewed From Wire End)

⚠WARNING

Electrical Shock Hazard

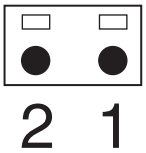
Disconnect power before servicing.
Replace all parts and panels before operating.
Failure to do so can result in death or electrical shock.

DOOR LOCK/SWITCH ASSEMBLY



Refer to page 4-4 for the procedure for servicing the door lock/switch assembly.

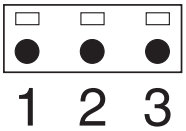
1. Unplug washer or disconnect power.
2. Set the ohmmeter to the R x 1 scale.
3. **To test the door switch:**
   a) Disconnect the connector from the CCU.
   b) Touch the ohmmeter test leads to the two connector terminals. The meter should indicate as follows:
   Door closed = 0 Ω.
   Door open = infinite (open circuit).



(Connector viewed From Wire End)

   c) Reconnect the door switch connector to the CCU.

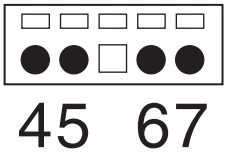
4. **To test the door lock/unlock solenoids:**
   a) Disconnect the connector from the CCU.
   b) Touch the ohmmeter test leads to the indicated connector terminals. The meter should indicate as follows:
   Lock solenoid at pins 1 and 3 = 60 Ω.
   Unlock solenoid at pins 2 and 3 = 60 Ω.



(Connector viewed From Wire End)

   c) Reconnect the door lock/unlock solenoid connector to the CCU.

5. **To test the door lock main switches:**
   a) Turn the washer on and select a cycle.
   b) Press START and you should hear the door lock solenoids engage.
   c) Unplug the washer from the wall outlet.
   d) Disconnect the door lock main switch connector from the CCU.
   e) Touch the ohmmeter test leads to the indicated connector terminals. The meter should indicate as follows:
   Main switch 1 at pins 4 and 5 = 0 Ω.
   Main switch 2 at pins 6 and 7 = 0 Ω.



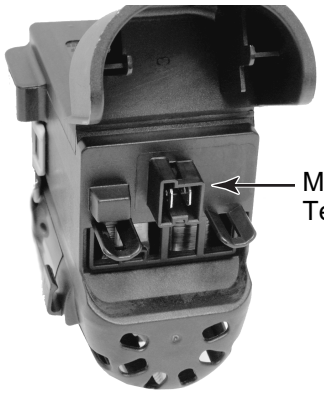
(Connector viewed From Wire End)

⚠WARNING

Electrical Shock Hazard

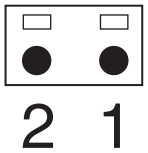
Disconnect power before servicing.
Replace all parts and panels before operating.
Failure to do so can result in death or electrical shock.

DRAIN PUMP MOTOR



Refer to page 4-18 for the procedure for servicing the drain pump assembly.

1. Unplug washer or disconnect power.
2. Disconnect the drain pump motor connector from the CCU.
3. Set the ohmmeter to the R x 1 scale.
4. Touch the ohmmeter test leads to the two drain pump motor connector pins. The meter should indicate 15 Ω.



(Connector viewed From Wire End)

INTERFERENCE FILTER

Refer to page 4-12 for the procedure for servicing the interference filter.

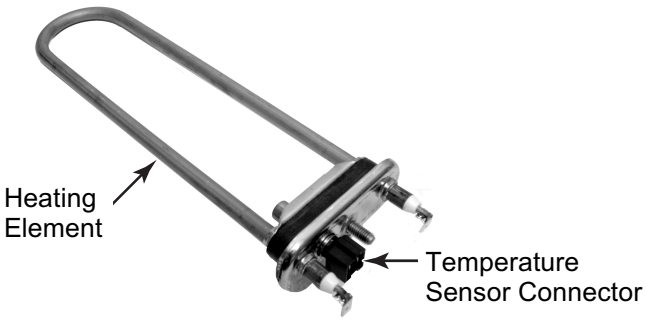
1. Unplug washer or disconnect power.
2. Disconnect the wire connectors from the interference filter terminals.
3. Set the ohmmeter to the R x 10K scale.
4. Touch the ohmmeter test leads to the interference filter connector pins. The meter should indicate approximately 450K Ω.

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.
Replace all parts and panels before operating.
Failure to do so can result in death or electrical shock.

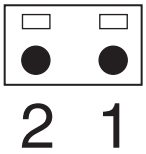
HEATING ELEMENT & TEMPERATURE SENSOR



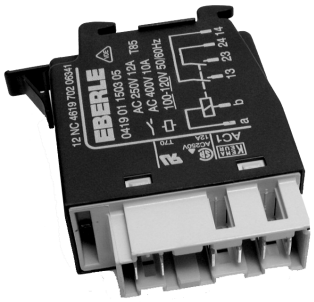
Refer to page 4-16 for the procedure for servicing the heating element & temperature sensor.

1. Unplug washer or disconnect power.
2. Disconnect the wire connectors from the heating element and temperature sensor terminals.
3. Set the ohmmeter to the R x 1 scale.
4. Touch the ohmmeter test leads to the two heating element terminals. The meter should indicate between 10 and 20 Ω.
5. Disconnect the heating element temperature sensor connector from the CCU.
6. Touch the ohmmeter test leads to the two temperature sensor connector terminals. The meter should indicate as shown in the following chart.

Temperature	Results
32°F (0°C)	35.9K Ω
86°F (30°C)	9.7K Ω
104°F (40°C)	6.6K Ω
122°F (50°C)	4.6K Ω
140°F (60°C)	3.2K Ω
158°F (70°C)	2.3K Ω
203°F (95°C)	1K Ω

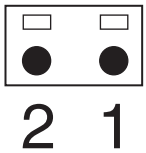


HEATING ELEMENT RELAY



Refer to page 4-17 for the procedure for servicing the heating element relay.

1. Unplug washer or disconnect power.
2. Disconnect the heating element relay connector from the CCU.
3. Set the ohmmeter to the R x 1 scale.
4. Touch the ohmmeter test leads to the two relay connector pins. The meter should indicate 15 Ω.



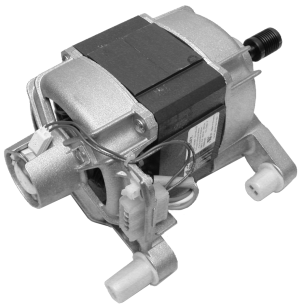
(Connector viewed From Wire End)

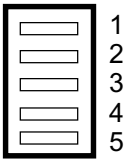
⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.
Replace all parts and panels before operating.
Failure to do so can result in death or electrical shock.

DRIVE MOTOR





(Connector viewed From Wire End)

Refer to page 4-22 for the procedure for servicing the drive motor.

1. Unplug washer or disconnect power.
2. Disconnect the wire connector from the drive motor terminals.
3. Set the ohmmeter to the R x 1 scale.
4. Touch the ohmmeter test leads to the following drive motor terminals. The meter should indicate between 3 and 8 Ω.

   Terminals 1 & 2
   Terminals 1 & 3
   Terminals 2 & 3

NOTE: Terminals 4 and 5 are for the tachometer.

INTERLOCK SWITCH

Refer to page 4-20 for the procedure for servicing an interlock switch.

1. Unplug washer or disconnect power.
2. Disconnect the wires from the interlock switch terminals.
3. Set the ohmmeter to the R X 1 scale.
4. Touch the ohmmeter test leads to the two interlock switch terminals. The meter should indicate an open circuit with the actuator in, and a closed circuit (0 Ω) with the actuator out.

DIAGNOSTICS & TROUBLESHOOTING

DIAGNOSTICS

⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

IMPORTANT

Electrostatic Discharge (ESD) Sensitive Electronics

ESD problems are present everywhere. ESD may damage or weaken the electronic control board. The new control assembly may appear to work well after repair is finished, but failure may occur at a later date due to ESD stress.

- Use an anti-static wrist strap. Connect wrist strap to green ground connection point or unpainted metal in the appliance.

  -OR-

  Touch your finger repeatedly to a green ground connection point or unpainted metal in the appliance.
- Before removing the part from its package, touch the anti-static bag to a green ground connection point or unpainted metal in the appliance.
- Avoid touching electronic parts or terminal contacts; handle electronic control board by edges only.
- When repackaging failed electronic control board in anti-static bag, observe above instructions.

DIAGNOSTIC GUIDE

Before servicing, check the following:

- Make sure there is power at the wall outlet.
- Has a household fuse blown or circuit breaker tripped? Time delay fuse?
- Are both hot and cold water faucets open and the water supply hoses unobstructed?
- All tests/checks should be made with a VOM or DVM having a sensitivity of 20,000 ohms per volt DC or greater.
- Check all connections before replacing components. Look for broken or loose wires, failed terminals, or wires not pressed into connectors far enough.
- The most common cause for control failure is corrosion on connectors. Therefore, disconnecting and reconnecting wires will be necessary throughout test procedures.
- Connectors: Look at top of connector. Check for broken or loose wires. Check for wires not pressed into connector far enough to engage metal barbs.
- Resistance checks must be made with power cord unplugged from outlet.

FAILURE/ERROR DISPLAY CODES

DISPLAY	EXPLANATION AND RECOMMENDED PROCEDURE
F/H F H	**NO WATER DETECTED ENTERING MACHINE OR PRESSURE SWITCH TRIP NOT DETECTED**
	If after 30 seconds the control does not detect water entering machine, the valves will be turned off and the error code will be displayed. ***OR*** If the control has turned the water valves on, and after 8 minutes, the flow sensor has detected 10.5 gallons of water passing through it, but has not detected the pressure switch trip, the valves will be turned off, and the error code will flash. Press PAUSE/CANCEL twice to clear the display.
	Possible Causes / Procedure • If there is no water in the unit: - Make sure that both valves at the water source(s) are turned on all the way. - Check for plugged or kinked inlet hoses or plugged screens in the inlet valves. - Verify inlet valve operation. • If there is water in the unit: - Verify drain pump operation. - Verify that the pressure switch hose is in good condition and properly connected to tub and pressure switch. 1. Verify there is not a siphon problem. 2. Unplug washer or disconnect power. 3. Verify wire harness connections to inlet valves, pressure switch, drain pump, flow meter, and Central Control Unit (CCU). 4. Check all hoses for possible leaks. 5. Plug in washer or reconnect power. 6. Verify pressure switch operation. 7. Verify flow meter operation by blowing air through the part and measuring the resistance. 8. Verify CCU operation by running a Diagnostic test or any cycle.

DISPLAY	EXPLANATION AND RECOMMENDED PROCEDURE
F/02 F 02	**LONG DRAIN**
	If the drain time exceeds eight minutes, the water valves are turned off and “F/02 ” is flashed. Press PAUSE/CANCEL two times to clear the display. **NOTE:** After four minutes the “Sud” error will be displayed, then four minutes later the “F/02 ” error code will be displayed..
	Possible Causes / Procedure 1. Check the drain hose and make sure it is not plugged or kinked. 2. Unplug washer or disconnect power. 3. Check the electrical connections at the pump and make sure the pump is running. 4. Check the drain pump filter for foreign objects. 5. Plug in washer or reconnect power. 6. If the above does not correct the problem, go to step 7. 7. Unplug washer or disconnect power. 8. Replace the pump.
F/05 F 05	**WATER TEMPERATURE SENSOR ERROR**
	If during the water heating step in the wash cycle, the water temperature sensor (NTC) value is out of range, the “F/05” error code will be displayed.
	Possible Causes / Procedure 1. Unplug washer or disconnect power. 2. Check the water temperature sensor. Refer to the “Water Temperature Sensor ” section. Check connections to the water temperature sensor. 3. Check resistance of heating element, if present on this model. (abnormal = infinity)
F/06 F 06	**DRIVE MOTOR TACHOMETER ERROR**
	The control is unable to properly detect motor speed and the machine will shut down. If a failure occurs during high-speed spin, the door will be unlocked after three minutes.
	Possible Causes / Procedure 1. Verify the shipping system including shipping bolts, spacers and cables are removed. 2. Unplug washer or disconnect power. 3. Check wire harness connections between the drive motor and the Motor Control Unit (MCU), and between the MCU and the Central Control Unit (CCU). 4. Plug in washer or reconnect power. 5. Check the MCU by looking for operations of the drive motor. 6. Check the drive motor for powered rotations.

DISPLAY	EXPLANATION AND RECOMMENDED PROCEDURE
F/07 F 07	**MOTOR CONTROL UNIT ERROR**
	The main control has detected a short in the Motor Control Unit. If a failure occurs during high-speed spin, the door will be unlocked after three minutes.
	Possible Causes / Procedure 1. Unplug washer or disconnect power. 2. Check wire harness connections between the drive motor and the Motor Control Unit (MCU), and between the MCU and the Central Control Unit (CCU). 3. Plug in washer or reconnect power. 4. Check the MCU by looking for operations of the drive motor. 5. Check the drive motor for powered rotations.
F/09 F 09	**OVERFLOW CONDITION**
	If the overflow contact on the pressure switch is closed for more than 60 seconds, an Overflow Condition will occur. In an overflow condition, the door remains locked and the drain pump runs constantly, even if PAUSE/CANCEL is pressed twice and the display is cleared. Turn off hot and cold water faucets and unplug the unit before servicing.
	Possible Causes / Procedure 1. Check the drain hose and make sure it is not plugged or kinked. 2. Unplug washer or disconnect power. 3. Check wire harness connections to the drain pump, pressure switch, and Central Control Unit (CCU). 4. Check/clean drain pump filter of foreign objects. 5. Check for drain pump failure. 6. Check the inlet valve for proper shut off. 7. Check the pressure switch for proper operation.
F/10 F 10	**MOTOR CONTROL UNIT (MCU) HEAT SINK THERMAL TRIP**
	If the thermal protector on the MCU heat sink gets too hot, it will open the thermal protector on the heat sink which will stop motor functions and an “F/10” will be displayed.
	Possible Causes / Procedure 1. Check for proper installation, verify the unit is not located near a source of heat and has proper ventilation. 2. Unplug washer or disconnect power. 3. Check wire harness connections to the MCU, the motor, and Central Control Unit (CCU). 4. Check the drive system for any worn or failed components. 5. Plug in washer or reconnect power. 6. Check the MCU by looking for operations of the drive motor. 7. Check the drive motor for powered rotations.

DISPLAY	EXPLANATION AND RECOMMENDED PROCEDURE
F/11 F 11	**SERIAL COMMUNICATION ERROR**
	Communication between the Central Control Unit (CCU) and the Motor Control Unit (MCU) cannot be sent correctly.
	Possible Causes / Procedure 1. Unplug washer or disconnect power. 2. Check wire harness connections to the MCU, the motor, and Central Control Unit (CCU). 3. Check the drive system for any worn or failed components. 4. Plug in washer or reconnect power. 5. Verify CCU operation by running a Diagnostic test or any cycle. 6. Check the MCU by looking for operations of the drive motor. 7. Check the drive motor for powered rotations. 8. Check that the serial harness at the MCU is not mounted upside down. The wires should be to the left when facing the MCU connectors.
F/13 F 13	**DISPENSER CIRCUIT ERROR**
	If the dispenser motor is not able to be driven to its proper position.
	Possible Causes / Procedure 1. Unplug washer or disconnect power. 2. Check mechanical linkage from dispenser motor to the top of the dispenser. 3. Check wire harness connections to the dispenser motor and Central Control Unit (CCU). 4. Check dispenser motor for powered rotations.
F/14 F 14	**EEPROM ERROR**
	The Central Control Unit (CCU) receives its data from an EEPROM onboard the CCU. If there is an error reading this data it will cause this error.
	Possible Causes / Procedure • A power glitch may cause this error. 1. Unplug washer or disconnect power for two minutes. 2. Verify CCU operation by running a Diagnostic test or any cycle.
F/15 F 15	**MOTOR CONTROL UNIT (MCU) ERROR**
	If the MCU detects multiple resets or errors during a wash cycle it will go into this error mode.
	Possible Causes / Procedure 1. Unplug washer or disconnect power. 2. Check wire harness connections to the MCU, the motor, and Central Control Unit (CCU). 3. Check drive belt. 4. Plug in washer or reconnect power. 5. Check the MCU by looking for operations of the drive motor. 6. Check the drive motor for powered rotations.

DISPLAY	EXPLANATION AND RECOMMENDED PROCEDURE
F/21 ***F/22*** F 21 F 22	**CCU / TOUCHPAD / LED ASSEMBLY ERROR**
	This error occurs if the touchpad/LED assembly is not able to transmit/receive data to/from the central control unit (CCU).
	Possible Causes / Procedure 1. Check the touchpad/LED assembly by selecting different cycles and changing the modifiers and options available to confirm the touchpad/LED is responding. 2. Unplug washer or disconnect power. 3. Check wire harness connections to the touchpad/LED assembly and Central Control Unit (CCU).
F/dU F dU	**DOOR UNLOCK ERROR**
	A Door Unlock Error occurs if the door cannot be unlocked. It will try to unlock the door six times before displaying the error code.
	Possible Causes / Procedure • Door lock mechanism is broken. • Door switch/lock unit failure. 1. Check door switch/lock unit for foreign objects. 2. Unplug washer or disconnect power. 3. Check wire harness connections to the door switch/lock unit and Central Control Unit (CCU). **NOTE:** The door switch/lock unit can be manually unlocked. See “Manually Unlocking The Door Lock System”.
F/dL F dL	**DOOR LOCK ERROR**
	A Door Lock Error occurs if the door cannot be locked. It will try to lock it six times before displaying the error code.
	Possible Causes / Procedure • Door lock mechanism is broken or removed from door. • Door switch/lock unit failure. 1. Unplug washer or disconnect power. 2. Check door switch/lock unit. 3. Check the wire harness connections to the door switch/lock unit and Central Control Unit (CCU).

DISPLAY	EXPLANATION AND RECOMMENDED PROCEDURE
	SUDS LOCK (OVERDOSE OF DETERGENT DETECTED DURING THE WASH CYCLE)
	The Motor Control Unit senses a suds lock condition by analyzing the current draw on the drive motor. If “Sud ”is displayed a potential Suds Lock is detected. This may signify a bad pump, an extra heavy load, excessive detergent, or excessive suds.
Sud Sud	***Possible Causes / Procedure*** • If too much detergent was used: - Run the unit through a Rinse/Spin cycle. - Run a Normal cycle without adding any detergent. This should clear the unit of the excess detergent. 1. Check the drain hose and make sure it is not plugged or kinked. 2. Unplug washer or disconnect power. 3. Check wire harness connections to the drain pump, pressure switch, and Central Control Unit (CCU). 4. Check/clean drain pump filter of foreign objects. 5. Plug in washer or reconnect power. 6. Check drain pump. 7. Check the pressure switch. 8. Verify CCU operation by running a Diagnostic test or any cycle.

DIAGNOSTIC TEST

The washer must be empty and the control must be in the OFF state before pressing the touchpad sequence to start the test.

Starting the Test Mode

- Close the door.
- Push CONTROL/ON (if present on this model).
- Select the DRAIN/SPIN cycle.
- Select NO SPIN by pressing the SPIN SPEED touchpad.
- Push PREWASH OPTION four times within five seconds. (If PREWASH OPTION is not present on this model, press RINSE HOLD four times within five seconds.) ***C:00*** will light up on the display.

If the Starting procedure fails, push the PAUSE/CANCEL touchpad, then repeat the starting procedure.

Test Program Control

In order to advance to the next step of the test procedure, push PREWASH OPTION touchpad two times. If PREWASH OPTION is not present on this model, press RINSE HOLD two times.

Indication	Control Action	Actuators To Be Checked
C:00	Door locks.	• Door lock system
C:01	Fill by cold water inlet valve.	• Flowmeter • Cold water inlet valve
C:02	Distribution system is set to Prewash position.	• Dispenser motor • Dispenser contact
C:03	Fill by hot water inlet valve.	• Hot water inlet valve
C:04	Drum rotates clockwise at wash speed.	• Motor • Motor Control (MCU)
C:05	Heater (if present on this model) is switched ON. Drum rotates clockwise at wash speed. If there is not enough water in the tub, the water inlet valve will be switched ON to achieve the minimum water volume.	• Heater (if present on this model) • NTC
C:06	Drain pump is ON.	• Drain pump
C:07	Drum rotates counterclockwise from 35 to 90 rpm within 15 seconds.	• Motor • Motor Control (MCU)
C:08	Drum rotates counterclockwise at maximum speed. - If max. speed =EXTRA HIGH, drum speed = >1000 rpm. - If max. speed =HIGH, drum speed = >800 rpm.	• Motor • Motor Control (MCU)

Be sure to perform the Diagnostic Tests on the previous page before replacing the system components.

Motor Continuity Test

1. Unplug washer or disconnect power.
2. Disconnect the wire harness from the motor and measure the resistance of the motor. Use the following table:

Pins	Results
1 to 2	Normal = 6 Ω (approximate) Abnormal = Infinity
2 to 3	
1 to 3	

Water Temperature Sensor

1. Unplug washer or disconnect power.
2. Disconnect the wire harness from the water temperature sensor and measure the resistance of the sensor. Use the following table. An abnormal condition is an open circuit.

Temperature	Results
32°F /0°C	35.9 kΩ
86°F /30°C	9.7 kΩ
104°F /40°C	6.6 kΩ
122°F /50°C	4.6 kΩ
140°F /60°C	3.2 kΩ
158°F /71°C	2.3 kΩ
203°F /96°C	1 kΩ

Manually Unlocking The Door Lock System

1. Unplug washer or disconnect power.
2. Remove the lower kick panel.
3. Reach up along the inside of the front and locate the bottom of the door switch/ lock unit.
4. Located on the bottom of the door switch/ lock unit is a teardrop shaped tab.
5. Gently pull the tab down about a 1/4″ or until a click is heard.
6. The door may be opened.

CONTROL BOARD REMOVAL OR REPLACEMENT

IMPORTANT: Electrostatic (static electricity) discharge may cause damage to electronic control assemblies.

NOTE: Be sure to perform the Diagnostic Tests before replacing the control board.

To remove Central Control Unit (CCU):

1. Unplug washer or disconnect power.
2. Remove all connectors from the CCU.
3. Place two flat blade screwdrivers under the left and right tab, on the top of the CCU and slide the CCU forward.

To reassemble CCU:

1. Align the tab on top of the CCU with the notch in the cabinet. Also, align the posts on the back of the CCU with the hole in the back of the cabinet.
2. Slide the CCU back into place.
3. Reconnect wire harness.

To remove the touchpad/LED assembly:

1. Unplug washer or disconnect power.
2. Disconnect touchpad/LED assembly wire harness from the CCU.
3. Remove dispenser drawer.
4. Remove left front screw that was covered by the dispenser drawer.
5. Open door, under the center of the touchpad/LED assembly there is a notch, insert a flat blade screwdriver in notch to release the bottom of the touchpad/LED assembly.
6. On the right hand side behind the touchpad/LED assembly, press tab to release right side of the touchpad/LED assembly.
7. Gently pry up and release the top of the touchpad/LED assembly. This should completely release the entire touchpad/LED assembly.

To remove Motor Control Unit (MCU):

1. Unplug washer or disconnect power.
2. Remove wire harness cover and disconnect the wire harness from the MCU.
3. With a flat blade screwdriver, lift the front tab up and slide the MCU forward.

To remove line/ interference filter:

1. Unplug washer or disconnect power.
2. Disconnect the three connectors from the line filter and power cord.
3. Remove the two screws which secure the line filter to the top brace.

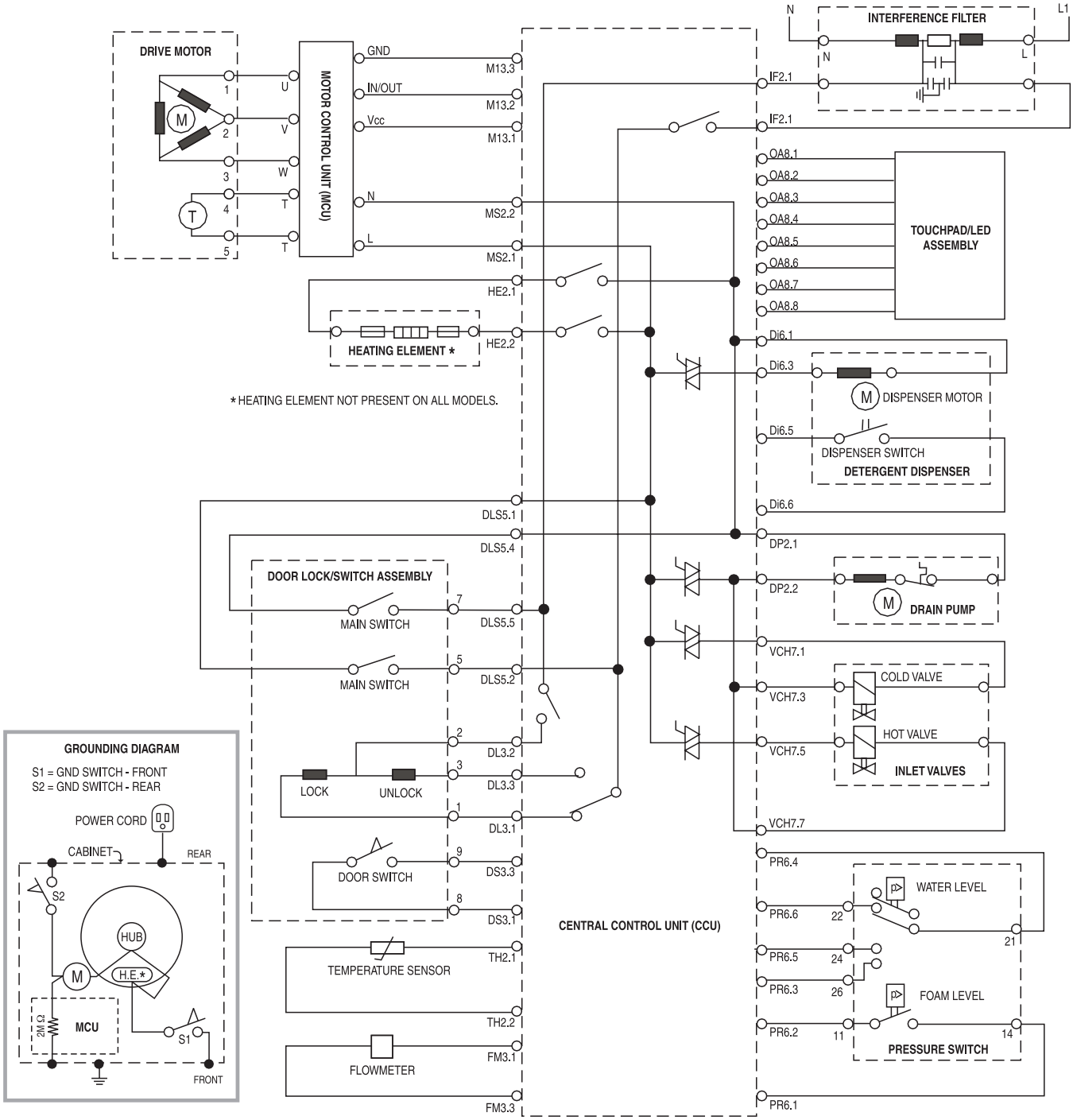
PROBLEM	POSSIBLE CAUSE/TEST **NOTE:** Possible Cause/Tests must be performed in the sequence shown for each problem
WILL NOT POWER UP Touchpads do not respond when pressed	1. Check that the unit is plugged into a working outlet and for blown fuses. 2. Check for power going to Central Control Unit (CCU) by listening for a click in the CCU when unit is plugged in. If no click, replace CCU. 3. Unplug washer or disconnect power. 4. Check continuity of line cord and line filter. 5. Check harness connections to CCU. 6. Plug in washer or reconnect power. 7. Check the touchpad/LED assembly by selecting different cycles and changing the modifiers and options available to confirm the touchpad/LED is responding.
WILL NOT START CYCLE	1. Open and close the door. The door has to be opened between consecutive wash cycles. 2. Check the door switch/lock unit using the diagnostics (see Diagnostic test). 3. If door is locked, drain the unit. 4. Unplug washer or disconnect power. 5. Check the wire harness connections. 6. Plug in washer or reconnect power. 7. Check the touchpad/LED assembly by selecting different cycles and changing the modifiers and options available to confirm the touchpad/LED is responding.
WILL NOT SHUT OFF	1. Check for a Fault/Error Code on the display. 2. Press PAUSE/CANCEL button on the touchpad twice. 3. Check the touchpad/LED assembly by selecting different cycles and changing the modifiers and options available to confirm the touchpad/LED is responding. 4. Unplug washer or disconnect power. 5. Check that the drain hose and drain pump filter are clear of foreign objects and not plugged. 6. Plug in washer or reconnect power. 7. Check drain pump. 8. Verify CCU operation by running a Diagnostic test or any cycle.
CONTROL WILL NOT ACCEPT SELECTIONS	1. Press PAUSE/CANCEL button on the touchpad twice. 2. Drain the unit, then check that the drain hose and drain pump filter are clear of foreign objects. 3. Check the touchpad/LED assembly by selecting different cycles and changing the modifiers and options available to confirm the touchpad/LED is responding. 4. Unplug washer or disconnect power. 5. Check harness connections. 6. Plug in washer or reconnect power. 7. Verify CCU operation by running a Diagnostic test or any cycle.

PROBLEM	POSSIBLE CAUSE/TEST **NOTE:** Possible Cause/Tests must be performed in the sequence shown for each problem
WILL NOT DISPENSE	1. Verify the unit is level. 2. Verify dispenser drawer is not clogged with detergent. 3. Check water connections to the unit and within the unit. Check for plugged screen in water source. 4. Check dispenser motor. 5. Unplug washer or disconnect power. 6. Check harness connections. 7. Plug in washer or reconnect power. 8. Verify CCU operation by running a Diagnostic test or any cycle.
WILL NOT FILL	1. Check installation. Verify hot and cold water faucets are open. 2. Check inlet valves. 3. Check water connections to the unit and within the unit. Make sure water supply hoses are unobstructed. Check for plugged screen. 4. Plug in washer or reconnect power. 5. Check operating pressure switch. 6. Check drain pump motor. 7. Verify CCU operation by running a Diagnostic test or any cycle. 8. Check under problem “Will Not Dispense.”
OVER FILLS	1. Verify the unit is level. 2. Check pump drain system. This could indicate a failure to drain. 3. Check operating pressure switch. 4. Check pressure switch hose. 5. Verify flow meter operation by blowing air though the part and measuring the resistance. 6. Verify CCU operation by running a Diagnostic test or any cycle.
DRUM WILL NOT ROTATE	1. Check drive belt. 2. Check drive motor. 3. Unplug washer or disconnect power. 4. Check wire harness connections. 5. Plug in washer or reconnect power. 6. Check the MCU by looking for operations of the drive motor.
MOTOR OVERHEATS	1. Check drive motor. 2. Unplug washer or disconnect power. 3. Check wire harness connections. 4. Check drive belt. 5. Plug in washer or reconnect power. 6. Check the MCU by looking for operations of the drive motor.

PROBLEM	POSSIBLE CAUSE/TEST **NOTE:** Possible Cause/Tests must be performed in the sequence shown for each problem
WILL NOT DRAIN	1. Unplug washer or disconnect power. 2. Check wire harness connections. 3. Check drain pump. 4. Check drain pump motor. 5. Check that the drain hose and drain pump filter are clear of foreign objects. 6. Plug in washer or reconnect power. 7. Verify CCU operation by running a Diagnostic test or any cycle.
MACHINE VIBRATES	1. Remove shipping system. 2. Check installation. 3. Check leveling feet.
INCORRECT WATER TEMPERATURE	1. Check that the inlet hoses are connected properly. 2. Unplug washer or disconnect power. 3. Check the water heater and wire harness connections to it. 4. Check water temperature sensor for an abnormal condition (see “Water Temperature Sensor”). 5. Plug in washer or reconnect power. 6. Verify CCU operation by running a Diagnostic test or any cycle.
DISPLAY IS FLASHING	See “Failure/Error Display Codes.”

— NOTES —

WIRING DIAGRAM



— NOTES —

TECH TIPS

MANUAL DOOR LATCH

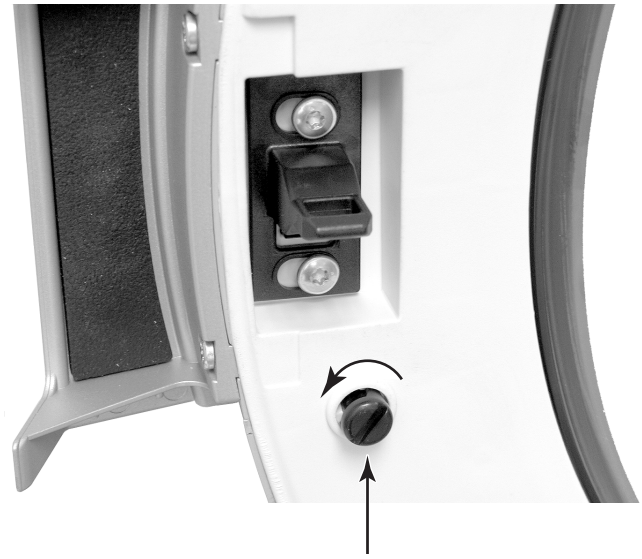
To manually unlock the door lock system, perform the following steps.

1. Unplug the power cord from the outlet.
2. Remove the lower toe panel.
3. Reach up along the inside of the front panel and locate the bottom of the door latch assembly.
4. Located on the bottom of the door latch assembly is a teardrop shaped tab. Gently pull the tab down approximately 1/4″, or until a click is heard.
5. The door may now be manually opened.

DOOR PLUNGER

A manual door plunger (child safety device) is available to prevent door closure. When the plunger is in the OUT position, it prevents the door from latching.

To activate the child lock feature, insert a coin in the plunger slot, and rotate it counterclockwise until the button pops out (left photo). To deactivate the child lock feature, press the button in, and rotate the coin clockwise until it locks (right photo).



Child Lock Activated (Button Out)

Child Lock Deactivated (Button In)

— NOTES —

PRODUCT SPECIFICATIONS
AND
WARRANTY INFORMATION SOURCES

IN THE UNITED STATES:

FOR PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION CALL:

FOR WHIRLPOOL PRODUCTS: 1-800-253-1301
FOR KITCHENAID PRODUCTS: 1-800-422-1230
FOR ROPER PRODUCTS: 1-800-447-6737

FOR TECHNICAL ASSISTANCE WHILE AT THE CUSTOMER'S HOME CALL:

THE TECHNICAL ASSISTANCE LINE: 1-800-253-2870

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FOR LITERATURE ORDERS:

PHONE: 1-800-851-4605

FOR TECHNICAL INFORMATION AND SERVICE POINTERS:

www.servicematters.com

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FOR PRODUCT SPECIFICATIONS AND WARRANTY INFORMATION CALL:

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